

# Battery vs. Gas Leaf Blowing c.2025

*The Revolution to Save Our Sanity, Our Health, Workers' Health, and the Planet!*



*April 19, 2025, is the 250<sup>th</sup> anniversary of the "shot heard round the world." Here, portrayed by sculptor Daniel Chester French, is Acton's Capt. Issac Davis, now ready for the battery leaf blower revolution. This time the sound will not be heard round the world, and not even round the corner!*

*Section:*

1. ***The Train Has Left the Station!*** (page 2)
2. **Product Cost, Configuration, Efficiency** (pages 3-4)
3. **Battery vs. Gas Cost Comparisons Over 5 Years** (pages 5-7)
4. **Lawn care Practices, Operations, Claims** (pages 8-12)
5. **Gas Leaf Blower Pollution & Impact** (pages 13-16)
6. **What About the Workers?** (page 17)
7. ***Back to Nature!*** (page 18)



*...harmful, costly gas models on the run!*

*Quiet, clean, powerful battery leaf blowers have...*



## The Leaf Blower Train Has Left the Station!

Many Towns Are Onboard    Gas Is Out – Battery Is In!    Delay Results in Harm

Complete testimony on p.12

### Gas-Powered Leaf Blowers Banned in Santa Cruz

Effective July 1, 2025

- Good for our health and planet.
- Advancing our climate goals.
- Rebate programs available.

\*Ban does not apply to properties of 10 acres or more



### Sopladores de hojas a gas Prohibido en Santa Cruz

A partir del 1 de julio de 2025

Bueno para nuestra salud y para el planeta



### Cambridge, Massachusetts Bans Gas-Powered Leaf Blowers

By Paige Bennett | Published March 17, 2025 | Edited by Chris McDermott



**After July 1, 2025 — It's the law!**  
**Gas leaf blowers are out. Electric is in!**  
 Invest in Electric or Grab a Rake  
 Del 1.º de julio de 2025 en adelante: ¡es la ley! ¡Los sopladores de hojas a gas se van y los eléctricos toman su lugar!  
 ¡Invierta en uno eléctrico ¡o use un rastrillo!

Montgomery County, MD 301 • 240-777-0311 • TTY MD RELAY 711

### GAS-POWERED LEAF BLOWERS PROHIBITED IN RESIDENTIAL NEIGHBORHOODS

www.cityofpaloalto.org/LeafBlowers



### Gas is Out. Battery is In.

Get ready for DC's new leafblower law.  
 Effective Jan. 1st.

2022



"You may hear some testimony today that it is not possible for landscape professionals to do our job without gas-powered blowers. But I can tell you from my own experience that that is completely untrue. We've been using only battery-operated blowers for the past two years, and have had no trouble keeping up with the work in a timely manner. We've had no complaints from clients that our services are taking more time, and have heard nothing but compliments on low noise levels from the battery blowers."

Landscape Nancy Sainburg  
 DC Leaf Blower Hearings, 2018

**GAS-POWERED LEAF BLOWERS PROHIBITED**  
 IN ALAMEDA AFTER JANUARY 1, 2023

www.alamedaca.gov/leafblowerban

Overview of 6  
Commercial Battery  
Leaf Blowers:

Power, Cost,  
Configuration

Products:

- **Echo** (makes gas & battery products)
- **Greenworks** (makes only battery products)
- **EGO** (makes only battery products)

**Force:** ~25N to ~35N is the range of typical commercial gas leaf blowers in use.

**Weight:** Battery leaf blowers tend to weigh 3-5 lbs. more than gas depending on battery size and number.

Every Package Includes:

- 1 commercial backpack leaf blower
  - Dual charger
  - 2kWh battery capacity
- This capacity provides 3-hour runtime on high/turbo mix. Different models require different numbers of batteries (3-7) depending on voltage and Ah rating.

*Note: Newtons are the best measure of leaf blower force.*

*1 Newton is the force needed to accelerate 1 kg of mass at the rate of 1 m/sec<sup>2</sup>.*

**Force:**  
(Newtons)

**~35N**

**~25N**

Echo:

Greenworks:

EGO:



**Echo DPB-7700T**  
• 56V  
• 36 Newtons  
• Est. 32 lbs w/battery  
**Total Package: \$2,298**



**Greenworks Optimus**  
• 80V  
• 36 Newtons  
• 32 lbs w/battery  
**Total Package: \$1,960**



**EGO LBPX1100**  
• 56V  
• 37 Newtons  
• 32 lbs w/battery  
**Total Package: \$2,131**

*3<sup>rd</sup> party batteries available at lower cost*



**Echo DPB-5900T**  
• 56V  
• 25 Newtons  
• 23 lbs w/battery  
**Total Package: \$1,998**



**Greenworks BPB80L421**  
• 80V  
• 25 Newtons  
• 23 lbs w/battery  
**Total Package: \$1,347**



**EGO LBPX8006-2**  
• 56V  
• 26 Newtons  
• 29 lbs w/battery  
**Total Package:**  
OEM batteries: **\$1,600**  
3-prty batteries: **\$1,200**

*Best Deal w/3rd-party Batteries!*

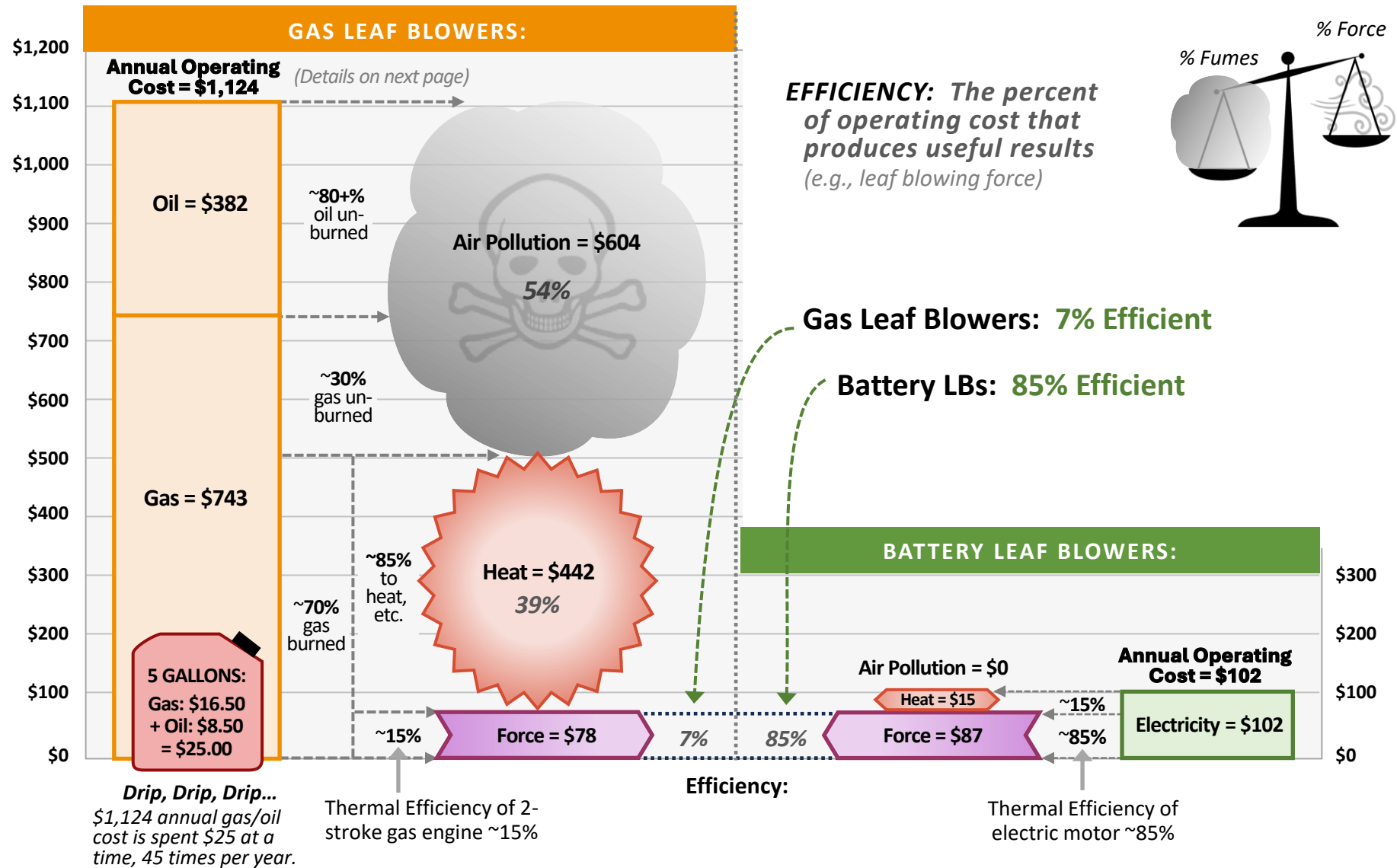
*3<sup>rd</sup> party batteries available at lower cost*

*Note: Prices are subject to change*



**Q: Why do gas leaf blowers cost so much to operate *and* pollute so much?**

**A: Because they are only 7% efficient (Battery LBs are 85% efficient)**



Annual usage = 500 hours

P. Kampas 4/2025

## Battery vs. Gas Operating Cost Savings for Commercial Use

Calculated by **STIHL** Online Tool: [LINK](#)

### Inputs to Calculator:

- **Usage:** 500 hours/year  
(typical commercial use)
- **Gasoline leaf blower:**
  - 0.45 gal/hour burned
  - $500 \times 0.45 = 225$  gal/year  
(= 7.5 gal/week x 30 weeks)
  - Gas: \$3.30/gal  
(89 octane recommended by mfg's)
- **Battery Leaf Blower:**
  - \$0.29 kWh cost

### Results:

#### Battery Operating Cost Savings:

\$1,022/year (from STIHL calculator)

#### + Service Cost Savings (typical)

\$150/year (no service required for battery LBs)

#### = Total Battery Savings:

$\$1,022 + \$150 = \mathbf{\$1,172/year}$

#### • Cost Breakout by Power Type:

- Gas LB = \$1,274/year  
( $\$150$  service +  $\$743$  gas +  $\$382$  oil)
- Battery LB = \$102/year (electricity)

**STIHL** PRODUCTS + PROFESSIONAL + GUIDES & PROJECTS + SUPPORT & EVENTS + DEALS +

Investment can pay off.

### COMPARE BATTERY VS. GAS POWER

Input information about your equipment usage and local prices to calculate your savings.

Please note that not every gas tool has a directly comparable battery-powered alternative. STIHL is always innovating our line of professional battery-powered tools, so check back in the future for the latest product offerings.

**STEP 1: BEGIN YOUR CALCULATION BY SELECTING THE PRODUCT YOU WANT TO COMPARE**

BATTERY GAS

**STEP 2: CHOOSE A PRODUCT**

BRA 500

COMPARABLE PRODUCT<sup>1</sup>

BR 600

**STEP 3: CUSTOMIZE USAGE**

GALLONS OF GAS CONSUMED PER WEEK

7.5

OPERATING WEEKS PER YEAR

30

CURRENT COST OF GAS PER GALLON

\$3.30

ELECTRIC PER KWH Not sure of your Electricity Price? [Find it here.](#)

\$0.29

### SAVINGS RESULTS

**\$1,022**  
EST. ANNUAL BATTERY COST SAVINGS<sup>6</sup>

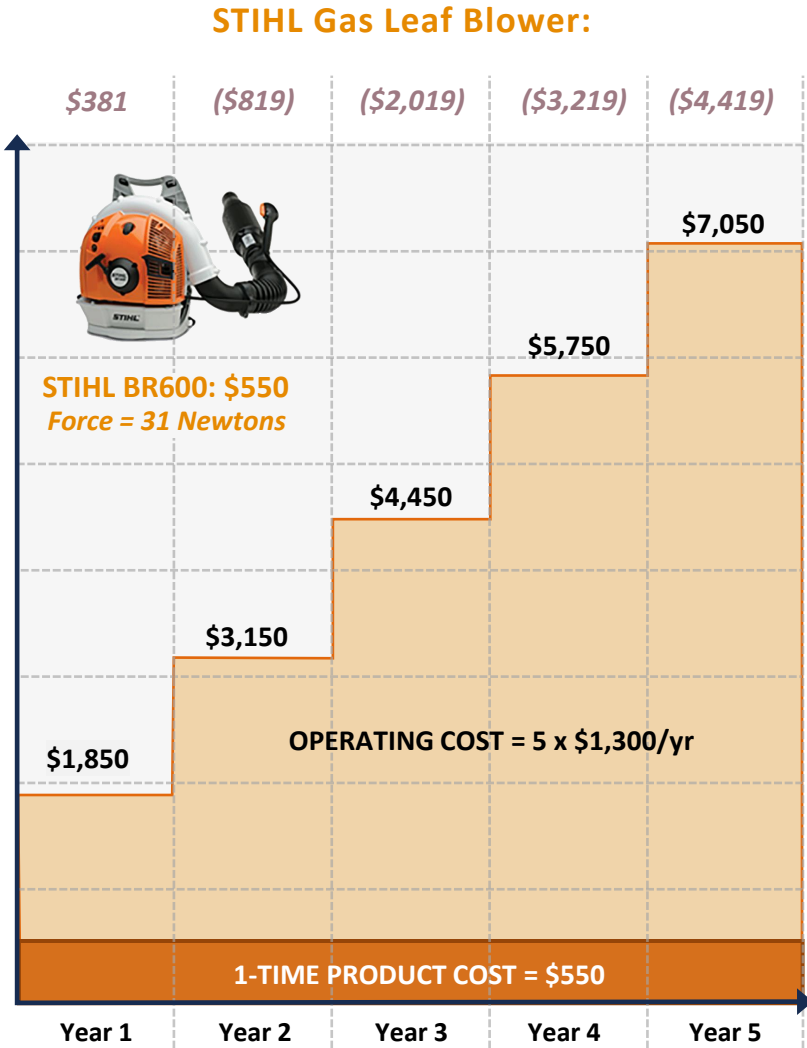
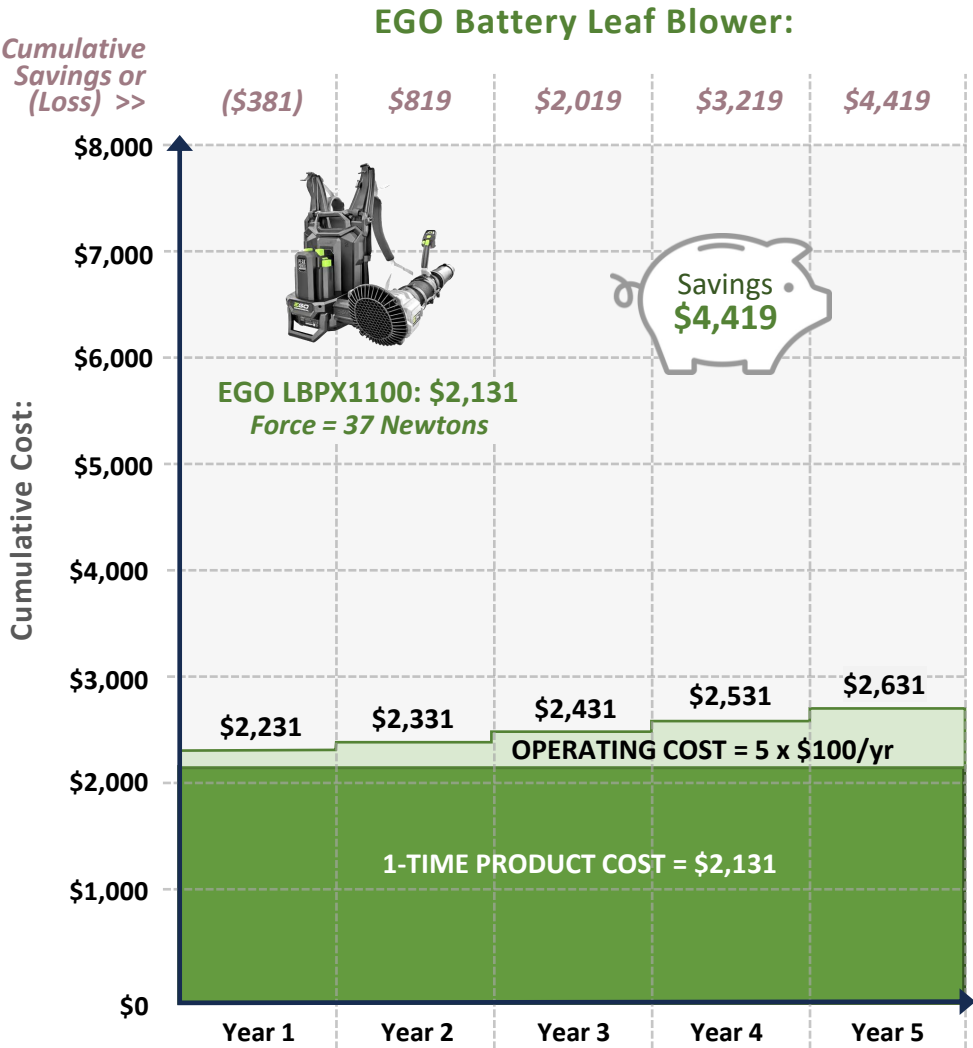
**\$85**  
EST. MONTHLY BATTERY COST SAVINGS<sup>6</sup>



**Note:** In 2-stroke gas leaf blowers, lubricating oil is mixed in with the gasoline in a 50:1 ratio, adding substantially to the cost and the amount of pollution produced (oil burns "incompletely" creating many harmful byproducts)

# Battery Leaf Blowers Save \$4,400 vs. Gas Over 5 Years (Commercial Use)

## Cumulative Cost Comparison



Annual usage: 500 hours

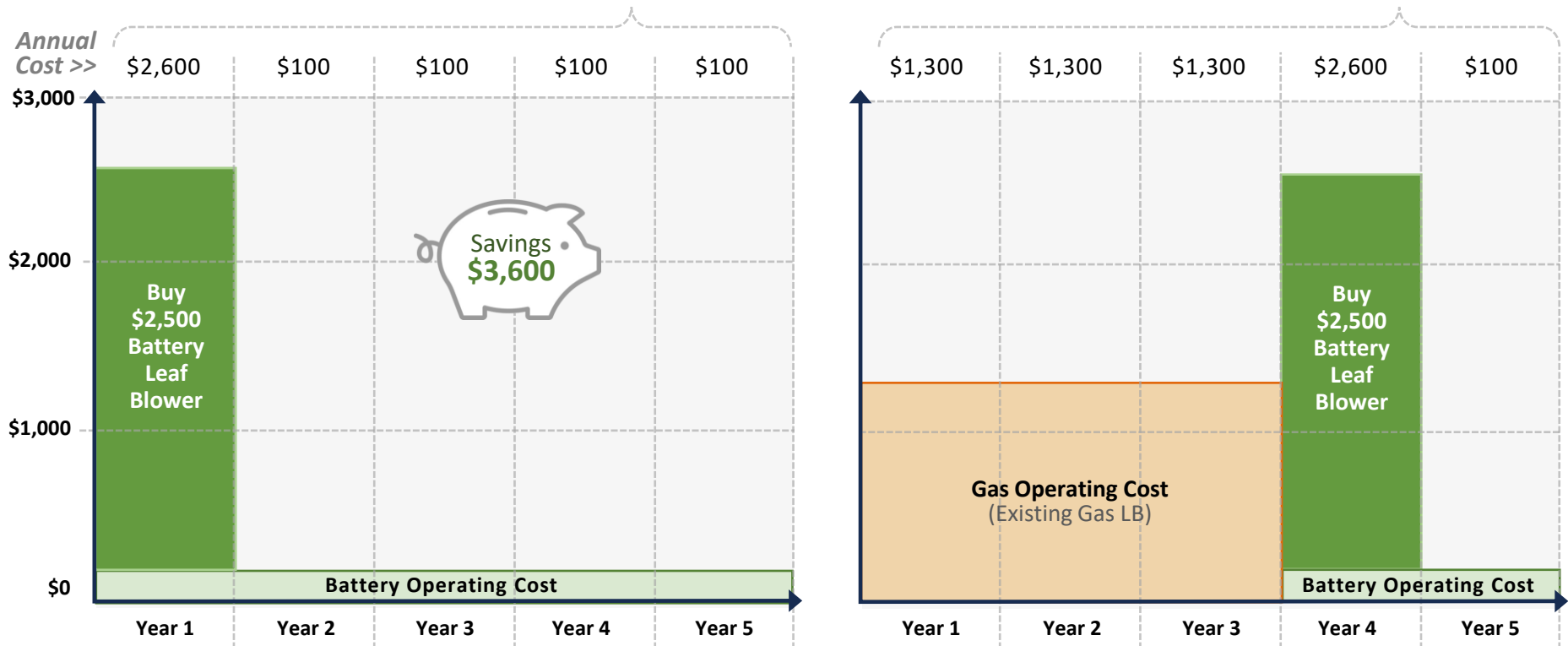
**Q: Does delaying the transition from gas to battery leaf blowers save money?**

**A: No. The sooner you switch, the more you save.**

### Annual Cost Comparison

**Early Transition 5-year Cost: \$3,000**

**Late Transition 5-year Cost: \$6,600**



Annual usage: 500 hours

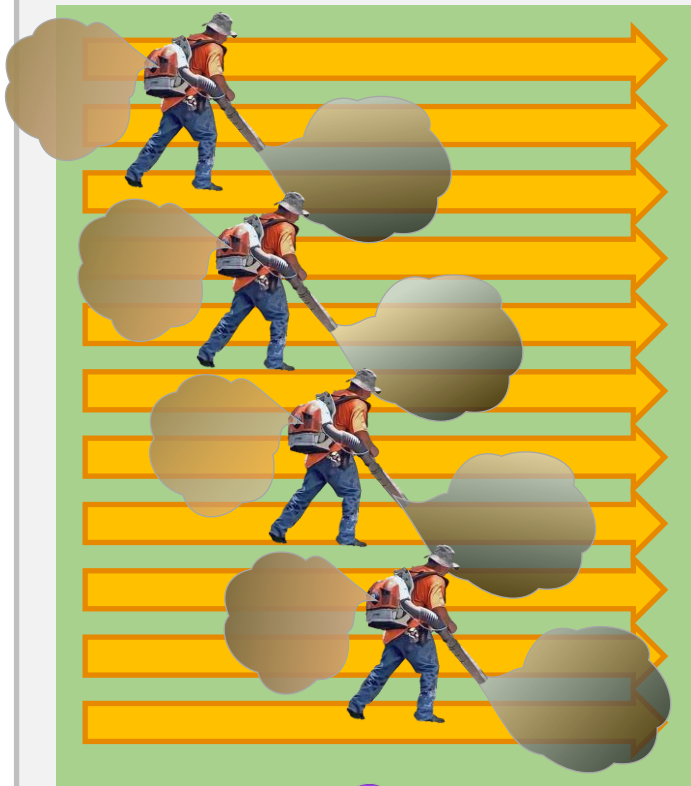
## Green Landscapers Blow Less, Mulch-mow More\*

*The Green Approach reduces noise, pollution, time, labor, cost, and amount of battery charging*

### TYPICAL GAS APPROACH:

*Slow, noisy, inefficient*

➡ Gas blow all leaves to woods or curb

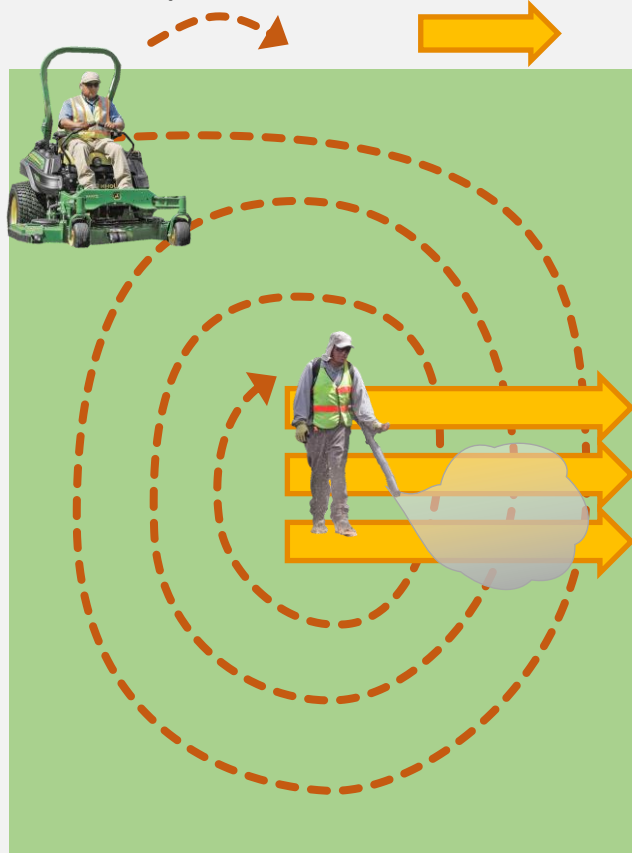


### NEW GREEN APPROACH:

*Faster, quieter, easy on batteries*

1. Mulch-mow leaves in spiral, side exit, creating leaf mulch pile in center

2. Battery blow leaf mulch pile to garden, woods or curb



### Green Approach Benefits:

1. **Saves time** as mulch-mowing is faster than blowing
2. **Saves money** as battery leaf blowing is less costly than gas leaf blowing
3. **Cuts down** the need for batteries and charging
4. **Turns leaves** into nutritious leaf mulch for garden beds (see next page)
5. **Reduces or eliminates** the need for expensive bark mulch
6. **Is much healthier** for people and planet

\*Source:  
EcoQuiet Lawncare



## Leaves Are TREASURE, Not Trash!

Leaving leaves in place or mulching them creates buried organic treasure as they decompose into **valuable nutrients** for your lawn, gardens, and entire ecosystem!



Mulch mowing can be done by you, your landscaper, and even by seniors on tractors as shown here!

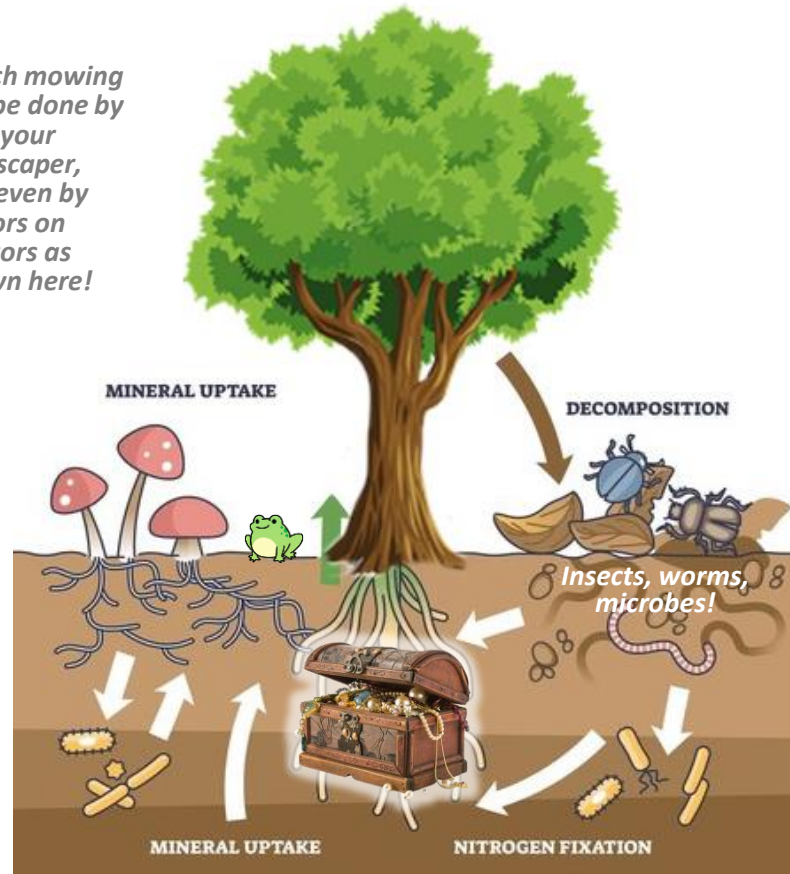
Mulch mowing provides nutrients for your lawn. It **does not acidify your soil**, even with oak leaves, and reduces the need for fertilizer!



Bag mulch (above), then put the leaf mulch around trees, in gardens (below).



**Note:** Whole leaves left in place enhance biodiversity as insect eggs are often attached to them.



### Five Benefits of Mulch Mowing:

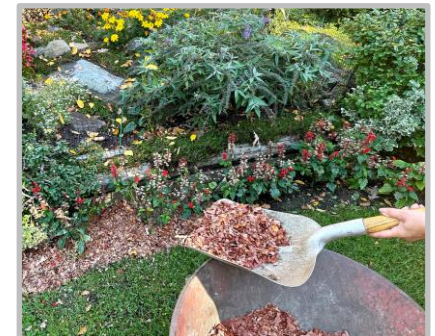
1. **Improved soil health:** The decomposed grass clippings provide nutrients to the soil, enhancing fertility and microbial activity.
2. **Reduced need for fertilizer:** By returning nutrients to the lawn, mulch mowing can significantly decrease the amount of artificial fertilizer needed.
3. **Thatch reduction:** Clippings prevent thatch buildup that smothers grass.
4. **Water conservation:** The mulch layer helps retain moisture in the soil, reducing the need for frequent watering.
5. **Natural weed control:** Mulch can help prevent weed growth by inhibiting sunlight from reaching the ground.



A pile of leaves (above) can be quickly mulched **with your lawn mower**, reducing volume by 10x!



...and then used in gardens, saving money on non-nutritive bark mulch.



## Q: Just How Significant is Leaf Cleanup Revenue?

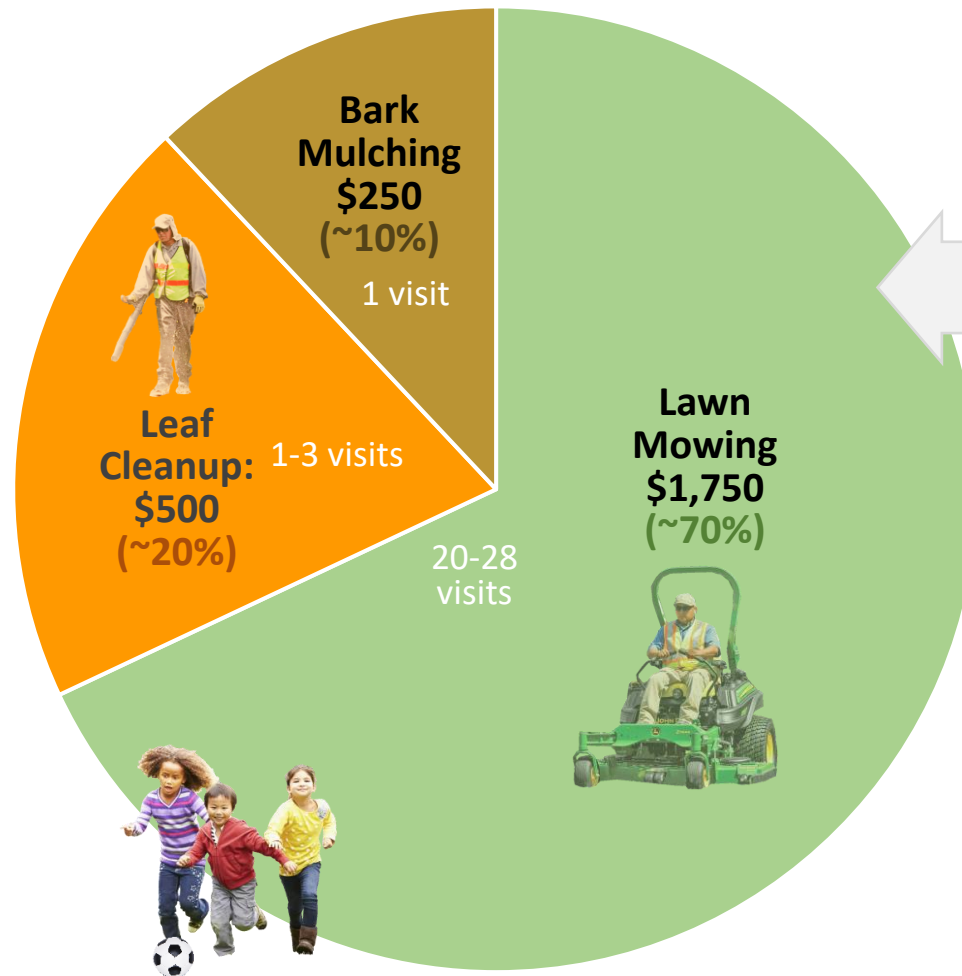
*Pristine yards can have big carbon footprints. Life and nature are 'naturally' messy. So let your lawn be more natural, and more sustainable!*

**Switching to battery leaf blowers affects only ~20% of landscaper revenue, so business impact is limited**

*Note: Landscapers also use high power gas leaf blowers for cleaning up grass clippings and a handful of leaves, but these "niceties" can be easily done with a handheld battery leaf blower or just deemed not necessary.*



*No leaves but still blowin'*



**Example annual half-acre Acton lawncare bill: \$2,500\***

*Properties vary widely in size, shape, terrain, number of trees, etc., so this revenue mix will vary depending on a landscaper's property mix.*

**BOTTOM LINE:** The financial impact of a leaf blower transition on landscapers is limited and temporary. Health benefits to residents, workers, and the planet are major and permanent.

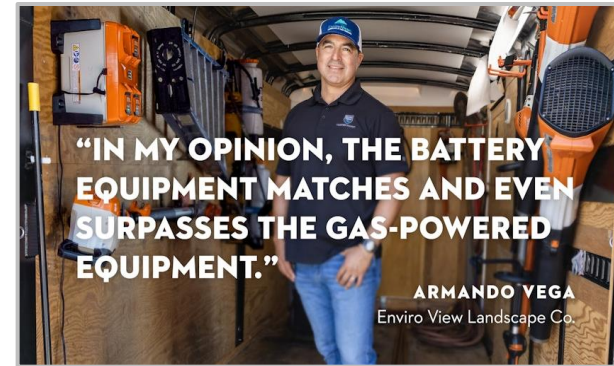
**\*Source:**  
EcoQuiet Lawncare



## Responding to Some Landscaper Claims

*The move from gas to battery leaf blowing is well underway across the country, with overwhelming evidence that this transition **does no harm** to lawncare businesses or DPW departments while **eliminating large amounts of harm** to residents, workers, and the planet.*

*Note that gas equipment giant **STIHL** posts this on their website >>*



In any endeavor, switching equipment is inconvenient, requiring new product evaluation and testing along with upfront investment. **Two approaches** are available in this situation as it applies to leaf blowers:

**A: THE PROACTIVE APPROACH:** *You care about the health of your customers and workers* and start transitioning now, giving you more time to figure things out at your own speed, building knowledge and competence. This way you become the business that customers move to, not from when they are ready for healthier lawncare. *If you are a lawncare purchaser, you want this kind of landscaper!*

**B: THE DENY/DELAY APPROACH:** Seeking to delay the transition for as long as possible, you make baseless claims to decision makers and the public, *ignoring the health impacts to your customers and workers*. Then you scramble like crazy at the last minute trying to get your act together as your customers realize they have healthier lawncare options available that you don't offer.

*Here are some examples of landscaper claims. Your first response in these situations should be to require them **show evidence** to back up their claims to avoid wasting decision-makers' time and misleading the public to act in a way that isn't in their best interest. Note that many complaining landscapers have no experience with battery leaf blowers!*

### ***"It will put me out of business:"***

We can't find a single example *anywhere* of a landscaper who went out of business because of a gas leaf blower ban. In fact, leaf cleanup is typically only about **20% or less** of a landscaper's revenue, making any impact limited and only temporary.

### ***"It doesn't work:"***

**EcoQuiet** has been all electric (including lawn mowers) for **14 years** on properties up to 27 acres. If what you say is true, they would never have succeeded, yet they are hiring and have acquired 3 Ford Lightning battery-powered pickup trucks for on-the-road charging of their lawn equipment.

### ***"They aren't powerful enough:"***

Stihl, the largest maker of outdoor handheld gas power equipment, states on their [website](#) that **"battery power has been matching gas power in the field for several years now."**

### ***"I will have to raise my prices:"***

Because batteries can be pricey, battery leafblowers cost more upfront than gas leafblowers, but they recoup that investment quickly due to **13x lower operating costs** (see pages 6-7). We find **no evidence** of widespread price increases when landscapers switch from gas to battery leaf blowing due to bans.

## Annotated DC Landscaper Testimony on Leaf Blowers

Enchanted Garden switched to all battery leaf blowers in **2016 – 9 years ago**, while many landscapers today say the equipment still isn't good enough. Local landscaper EcoQuiet started using all battery leaf blowers **14 years ago**.

**Cognitive appraisal theory** (1986: Lazarus & Folkman) suggests that when a noise is perceived as **controllable or necessary**, your brain is able to filter it out (a coping mechanism), but otherwise it can be **disturbing**.

This is why the noise didn't bother Nancy as a landscaper (it was controllable and necessary), but when she was a citizen walking her dog, it was disturbing.

Nancy's workers were skeptical at first ("toys") but soon favored battery leaf blowers. Why? With gas equipment, **noise equals power**, so they had to see and use battery LBs to believe they really worked – and their headaches went away!

**⚠ WARNING**

### Carbon Monoxide

- May cause dizziness, nausea, or headache.
- Excessive exposure may cause unconsciousness and death.
- May aggravate heart and artery diseases.

Workers' headaches were likely caused by **carbon monoxide poisoning** from their gas LBs, which create **23 times more CO than a Ford Raptor pickup truck!**

More on next page...

### Testimony of Landscaper Nancy Sainburg at DC Leaf Blower Hearings (2018)

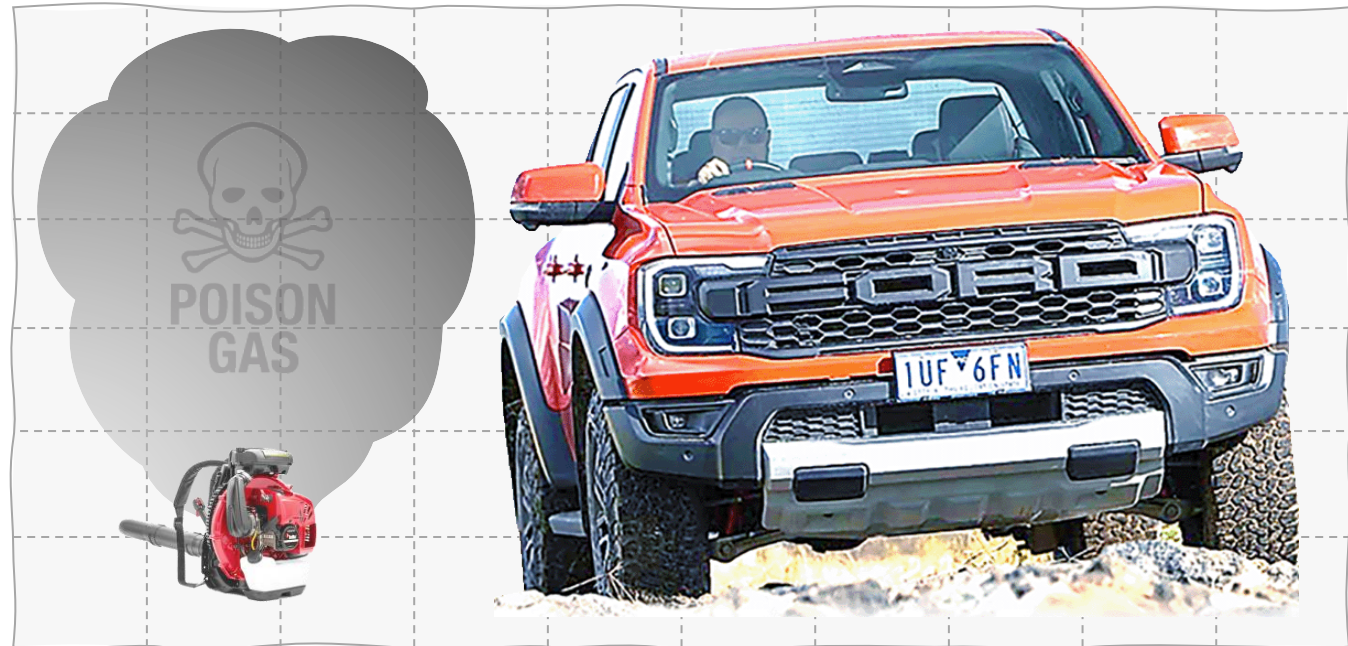
"Good afternoon, my name is Nancy Sainburg, and I'm the owner of the Enchanted Garden, a landscaping company located here in DC. We've been in business for **over 30 years**, and a majority of our business is in DC. We provide services to clients with properties as small as townhouses, and as large as several acres. Both commercial and residential properties.

You may hear some testimony today that it is not possible for landscape professionals to do our job without gas-powered blowers. But I can tell you from my own experience that that is **completely untrue**. We've been using only battery-operated blowers for the **past two years**, and have had **no trouble keeping up with the work** in a timely manner. We've had no complaints from clients that our services are taking more time, and have heard **nothing but compliments on low noise levels from the battery blowers**.

My epiphany regarding the switch from gas blowers to battery blowers occurred two years ago. I was out walking my dog, and I heard a leaf blower. When I got closer to the noise, I realized that **it was my own landscape crew**, who were finishing up an installation in my neighborhood. I had heard it from over two blocks away. **That was it for me. The noise pollution was just too much.**

I went out the next week and bought a battery-operated blower to see how well it worked. The initial reaction from my crew was, "Okay, we'll give this toy a try." **But pretty soon they were favoring the battery-powered blowers over the gas blowers.** The following spring season, we switched to all battery-powered equipment. The crew asked if we could keep one gas blower for the fall leaf season, and I decided to see what would happen. Once the fall season came, no one even once mentioned using the gas blower. **The people who worked with this equipment every day have said that they enjoy using it much more than the gas equipment. They're not subjected to high noise levels, and they don't have headaches at the end of the day, which was often a complaint.** Thank you."

**POLLUTION:**  
For the same run time, a 25 lb. gas leaf blower creates far more pollution than a 5,757 lb. Ford Raptor pickup truck!



**3 HP Gas LB:**  
**25 lbs**

**450HP Ford F-150 Raptor:**  
**5,757 lbs**

• Non methane hydrocarbons	1.495 gr/min	<b>300X more than</b>	0.005 gr/min
• Oxides of Nitrogen	0.010 gr/min	<b>2X more than</b>	0.005 gr/min
• Carbon Monoxide	6.445 gr/min	<b>23X more than</b>	0.276 gr/min

Source: [edmunds.com](http://edmunds.com)

Source: [CARB](http://CARB)

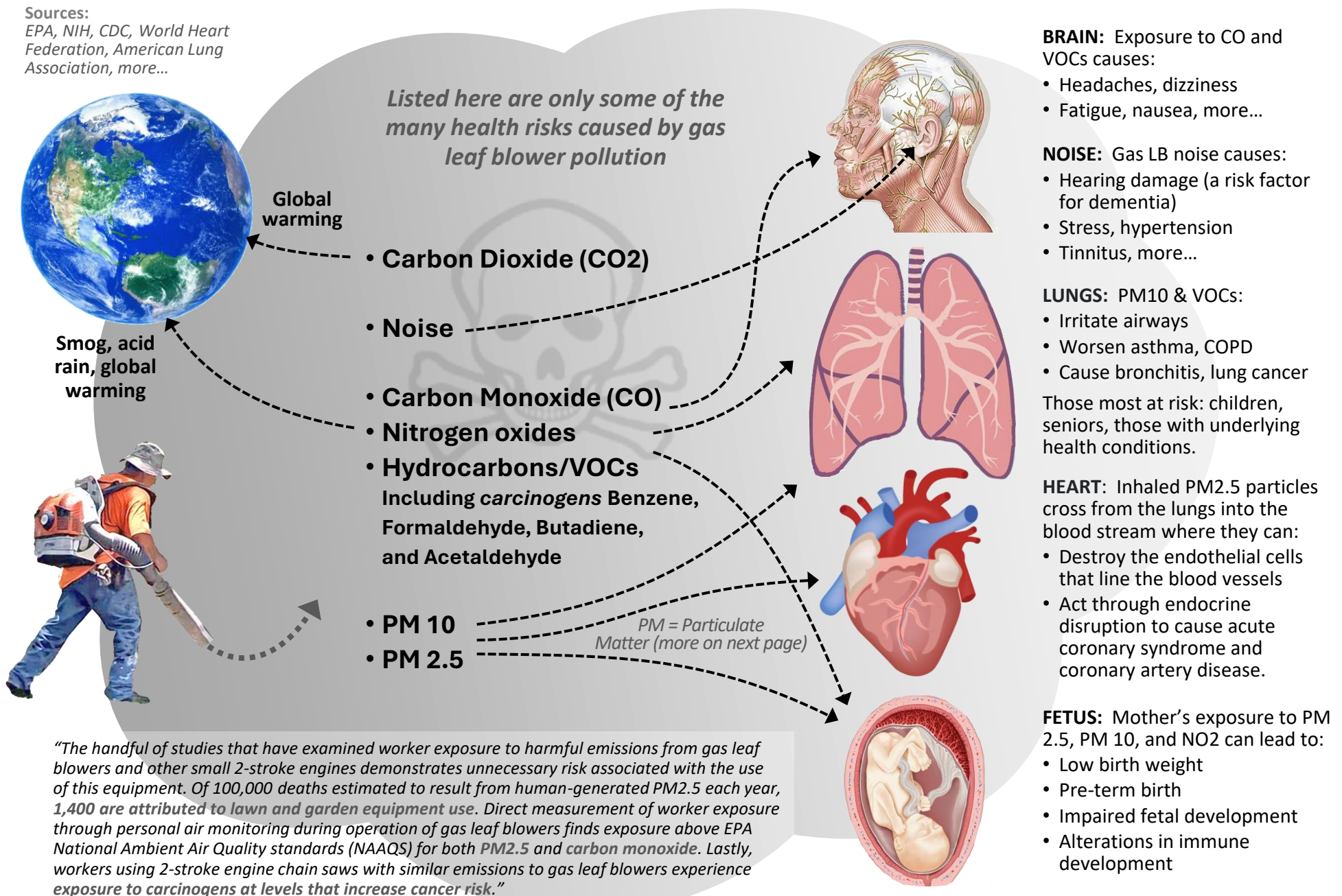
**Using a gas leaf blower for 1 hour produces as much smog forming pollution as driving a car 1,100 miles, the distance from Boston to St. Louis MO, over 15 hours of driving**



## Gas Leaf Blowers Cause Health Risk to Workers, Residents, and the Planet

### Sources:

EPA, NIH, CDC, World Heart Federation, American Lung Association, more...



- Mt. Sinai Ichan School of Medicine (NYC)

P. Kampas 4/2025

## PM2.5 Is Bad for Immunity, Heart, the Unborn!

***There is no safe threshold for tiny particulate air pollution! PM2.5 is associated with the greatest proportion of adverse health effects related to air pollution.***

### Sources:

- Gas motors, esp. 2-stroke (e.g., gas leaf blowers!)
- Power plant combustion
- Industrial processes involving combustion
- Smoke from fireplaces, wildfires, cigarettes

### PM2.5 Damages Human Immunity

- Disrupts the normal functioning of immune cells, esp. in the lungs
- Can trigger inflammation in the lungs, increasing risk of infections
- Can induce oxidative stress which can impair the immune system
- Can alter the balance of immune system (from Th1 to Th2 response)
- Most vulnerable: **children, elderly**, those with **pre-existing conditions**

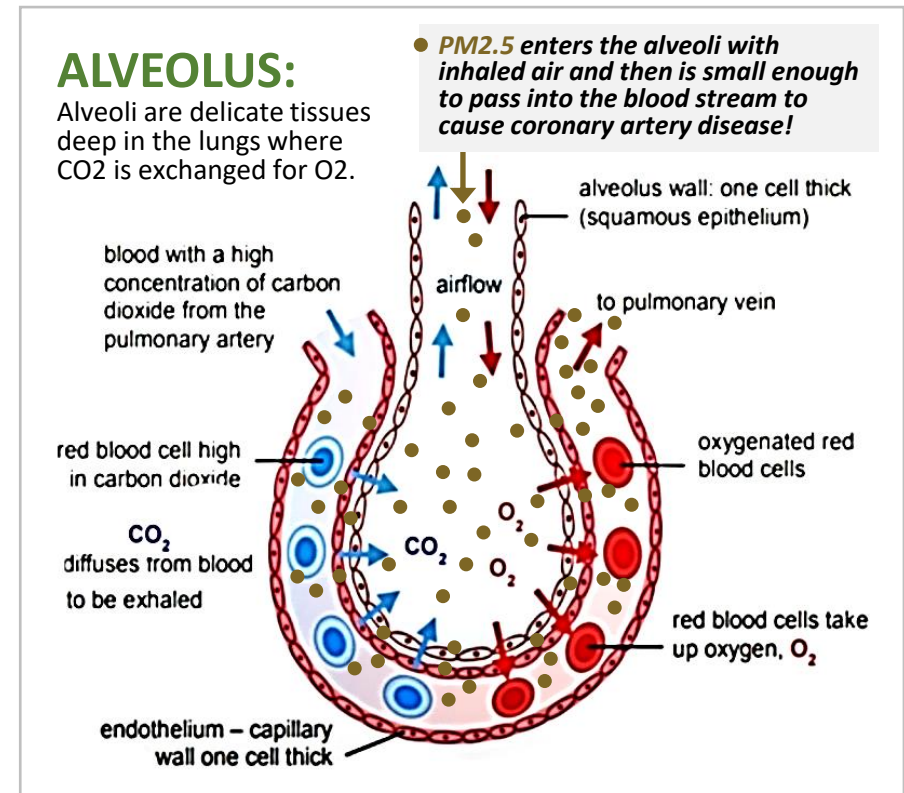
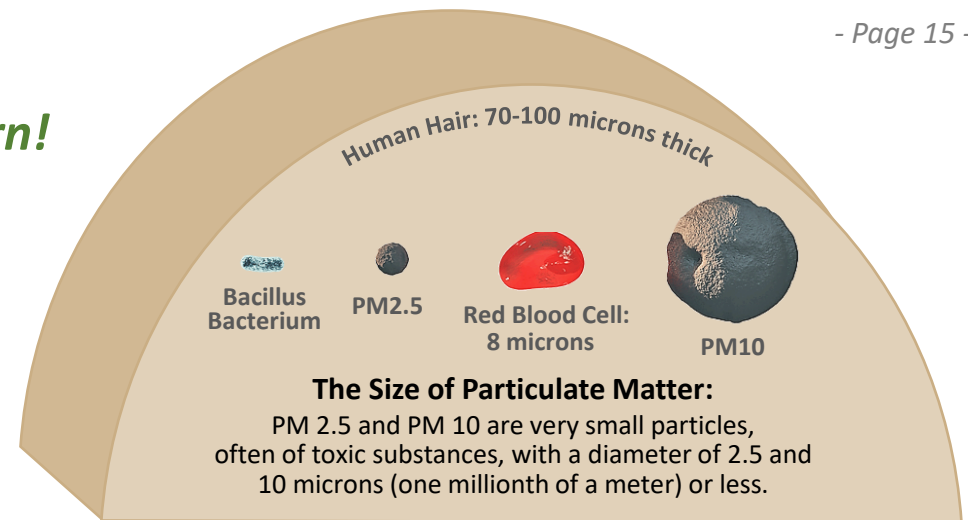
### PM2.5 Is Linked to Adverse Birth Outcomes

- Exposure at any time can cause low birth weight
- Exposure in 2<sup>nd</sup> and 3<sup>rd</sup> trimesters can cause preterm birth
- Exposure in the 3<sup>rd</sup> trimester can cause stillbirth
- Can cause alterations in fetal immune development

### From World Heart Federation:

#### HOW DOES PM2.5 AFFECT OUR HEARTS?

PM2.5, particles composed of various noxious substance, increase the risk of cardiovascular disease by crossing the alveolar barrier (get into the blood from air in the lungs) and destroying endothelial cells directly or acting through endocrine disruption, causing either acute coronary syndrome or coronary artery disease and their risk factors such as hypertension, obesity and diabetes. (Endothelial cells are the cells that line blood vessels.)



Sources: [CARB](#), [American Lung Association](#), [World Heart Federation](#)



### UN Definition of Sustainability

*Meeting the needs of the present without compromising the ability of future generations to meet their own needs.*

## Greenhouse Gas (CO<sub>2</sub>e) Production by Leafblowers



**Fuel Consumption:**

**0.45 gal + oil/hour**

**0.7 kW**

**CO<sub>2</sub>e Production:**

**9 lbs/hour**

**0.6 lbs/hour**

**0 lbs/hour**

**Yearly CO<sub>2</sub>e Production:**

(500 hours usage)

**4,500 lbs/year**

**300 lbs/year**

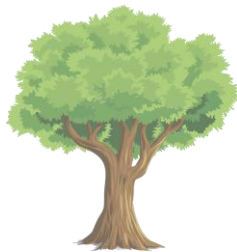
**0 lbs/year**

**NOTE: A 25 lb. gas leaf blower produces 4,500 lbs. of CO<sub>2</sub>e per year!**

*Batteries charged with typical grid power mix*

*Batteries charged with Renewable Energy (RE)*

*A mature tree captures only 48 pounds of CO<sub>2</sub> per year, thus requiring **95 mature trees** to absorb the CO<sub>2</sub> produced by a single gas leaf blower.*



**- 48 lbs CO<sub>2</sub>e/year**

From: Manufacturers website data and Online Tool Reviews  
- Echo, Stihl, Husqvarna, Makita, EGO, Oregon DEQ – Fuel Pathways, Carbon Intensity of Fuels, 2018



*We are responsible for leaving our children and grandchildren a habitable planet!*



## What About the Workers? A Voice from the Latinx Community

*Summary of Presentation to the Acton Select Board on 1/27/2025*

**Buenas tardes. Good evening.** I am the Rev. María Uitti McCabe and I am a Unitarian Universalist minister. My ministry compels me to use my voice on behalf of Latinx immigrants to this country – in this case the landscapers whose health is in danger from gas-powered leafblowers. I am a Latina woman from Puerto Rico and my native language is Spanish. I bring a lifetime of experience in issues affecting the Latinx immigrant community.



Research consistently shows that documented and especially undocumented workers from Mexico and Central America most often work in the most hazardous occupations in the United States. These jobs – in construction, agriculture, landscaping, meat packing plants, janitorial work and others require strenuous physical activity, and they expose workers to toxic materials and other potentially fatal conditions. “immigrant workers experience 300 more workplace fatalities and 61,000 more workplace injuries annually than native-born workers, and undocumented immigrants are more likely to experience dangerous working conditions than legal immigrants.”



Not only do they work for less money under constant threat of deportation, but they are threatened with retribution if they report their employer or their personal injuries.

***You might say to yourselves, it's their choice. If they want to kill themselves, that's their problem.***

I am here to say to you, that these men come to this country desperate to earn enough money not only to support their families and children but to keep them safe. Especially if their families still live in their home countries. Family is everything in my culture. Any of you would go to any lengths if your families were threatened by constant violence and pervasive poverty.

It is troubling to note the absence of consideration for the plight of Latinx landscape workers in Acton, even though they potentially suffer the worst health outcome from constantly operating gas-powered leafblowers. According to the Journal of Migration and Health, this omission signals a pattern of systemic racism that frequently affects this population. Undocumented Latino immigrants continue to be among the most marginalized minorities, relegated to essential sectors of the US workforce where they are the most vulnerable to harmful conditions that impact their occupational health outcomes.”

The Rev. Dr. Martin Luther King Jr. often said this: ***“It is always the right time to do the right thing.”*** I ask you, do the right thing now. Use your power to protect the lives and health of landscape workers sooner rather than later. Please, don’t put it off.

### ***References:***

[Workplace Discrimination and Undocumented First-Generation Latinx Workers](#)  
[Systemic racism and undocumented Latino migrant laborers during COVID-19](#)

## From TOXIC to TRANQUIL: Getting the Outdoors Back!



### A TRANQUIL OUTDOORS RESTORES US. We become...

#### ...Less Anxious and Stressed

A study published in Frontiers for Psychology found that as little as 20 minutes in nature reduced levels of cortisol, a hormone our bodies produce when we're stressed.



#### ...More Focused and Creative

Our daily lives are filled with new stimuli and distractions that shorten our attention spans and can lead to mental fatigue. Getting outdoors can improve focus, short-term memory, and even creativity.



#### ...More Fit and Healthy

When we go outdoors, we tend to be on the move, whether we are walking, biking, climbing or paddling. Getting active outside boosts our endorphins and serotonin levels, mood improving hormones connected to sunlight and exercise.



Source:

MENTAL HEALTH AND THE OUTDOORS

Appalachian Mountain Club