

Supplemental Submission to the Record  
of the Committee of the Whole  
regarding the  
Leaf Blower Regulation Amendment Act of 2017  
By James Fallows

This is a submission for the Record of the Leaf Blower Regulation Amendment Act of 2017, following the brief written statement I provided for the July 2, 2018 hearing of the Committee of the Whole. I work as a journalist, but these comments are purely in my personal capacity as a long-time citizen and resident of the District of Columbia and a member of Quiet Clean DC.

Through my decades as a reporter and writer – mainly, and currently, for the *Atlantic* magazine, based in the District, but also for the technology publications *Wired* and *The Industry Standard*, for *The New Yorker* (about medical technology), and for the technology section of the *New York Times*, among others – I have frequently covered technological developments and their impact on business and the environment. Three of my books have been about the intersection of technology, business, and the environment (*The Water Lords*, *Free Flight*, and *China Airborne*), and many of my articles have also been on this theme. For instance, I have frequently interviewed Elon Musk, of Tesla and Solar City, for the *Atlantic*, including on his work in new battery technology and sustainable energy sources. I have been part of a panel convened by the National Academy of Sciences on how U.S. technology companies could best respond to high-tech policies by Asian economies, and I have presented in-person briefings on technology policy to two different Presidents at the White House, to three serving Vice Presidents, to White House staff members in both Republican and Democratic administrations, and at the Treasury, State, and Defense departments.

It is in my capacity as a reporter on technology and environment issues that I have looked into the gas-powered leaf blower question over the past half-dozen years. My purpose in this statement is to note briefly several developments that are relevant to your decision on this legislation -- and that, in my view, make it a very practical and positive step for the District. This statement is meant to supplement the extensive acoustic, public health, and business-related statements you have received from other witnesses.

I would like to start with responses to several of the witnesses who appeared at the June 2 hearing. The testimony I mention first constitutes genuine news, and I hope you will give it very close attention in your deliberations:

1. The testimony of *Chris Pollock, P.E., the representative of Arup USA, Inc.*, is of fundamental importance, which the industry representatives did not even seem to recognize but which I hope and assume the Council will.

The original scientific studies that Arup conducted provided the factual, acoustic basis for something that is obvious through common sense: that the *sound* of a gas-powered blower differs from that of a battery-powered machine, even if the official decibel ratings are “the same.” As you heard in the sample that was played for you, and as the acoustic charts dramatically illustrated, the difference is in the prominence of low-frequency sound waves from gas-powered equipment. Higher-frequency sound can be more annoying at close range (for instance, a dental drill), but it falls off very quickly with distance. The US Navy uses ultra-low frequency radio waves to communicate with its submarines underneath the ocean, and on similar principles the low-frequency waves from gas-powered machines can travel for hundreds of yards, and through walls and windows.

The industry representatives contend that “quieter” gas powered machines will meet community standards, without reckoning with this difference in sound quality. The new information from Arup is comparable to having a humidity factor (to go along with temperature) in summer weather reports, or a wind factor to go along with temperature in the winter. An 88-degree F August afternoon means one thing in Washington DC, where the dripping humidity creates a sweltering effect – while the same 88 degrees would feel entirely different in the bone-dry air of Denver or Palm Springs. Similarly: a bright, clear winter day with a temperature of 20 degrees F, but no wind, can feel warmer (and objectively will lead to less heat loss) than a day with a slightly higher temperature but a howling wind. That is why meteorologists have come up with “wind chill” and “feels like” measures, to include the effects of humidity on warm days, and wind on cold days.

The new Arup information is the acoustic counterpart to a wind-chill or humidity measure. It helps explain why 75 decibels from a gas-powered blower is entirely different in its community (and worker) impact from a 75-decibel reading from a battery-powered machine. The industry’s current measures and rationales pay no attention to this at all.

2. *Gregg Easterbrook*, the renowned science-and-technology author, made a point worth underscoring in his testimony. He emphasized that, as a historical reality, *all* mandated steps toward cleaner technology – “not most, but all” as he said in his statement – were controversial before their acceptance, but afterwards led to reactions of, “Why did we wait so long?” This ranged from banning DDT, to unleaded gas and catalytic converters for cars, to smokestack controls on factories and power plants. There is no reason to think anything different will apply in this case. Communities will be better off; workers will be much safer and healthier; companies can serve their customers, with much less friction for everyone involved.
  
3. The *lobbyist-witnesses for the lawn-care industry* centered their case on “considerate” lawn care practices, such as using only one machine at a time, and not running the machines at top volume. This has been the heart of the industry’s case for nearly 20 years, and it rests on the assumption that the “best practices” laid out on the industry’s web site or in leaflets from the manufacturers will have any influence on the way real lawn crews operate in the real world.

I believe that any Council member who has ever seen lawn crews at work will understand the preposterous nature of this claim. Routinely crews use multiple machines at the same time; routinely they run them at the highest rated power. This is not the crews’ fault; no doubt, it reflects instructions from their managers and employers. The industry can submit no evidence whatsoever that their “guidance” affects real-world practices, because none exists. This rationale resembles tobacco industry arguments that rules about second-hand smoke were not necessary, because smokers could learn to be more considerate of others – in the office, aboard an airplane, in shops and other public places.

4. The director of the *DCRA*, *Ms. Melinda Bolling*, argued that a shift from gas- to battery-powered leaf blowers would create new enforcement problems. In fact, all evidence from the rest of the country suggests just the reverse, as does simple logic.

Regulating lawn equipment by sound level while it’s being used, which is the current D.C. approach, relies on something that is indeed impractical: real-time measurement of decibel levels, while the crews are at work. (This, in turn, means having an authorized sound-meter system in place; measuring the precise distance from the work crews – who are of course moving as they work; recording and authenticating the measurement; and getting some enforcement unit to arrive while the work is still going on. As a practical matter, this never occurs.) Regulating equipment by its labelled sound rating is also difficult. Enforcers would need to check each individual machine and compare it with a

list of authorized and unauthorized models.

By contrast, regulating on the basis of machine *type* is much easier and more clear-cut. At a glance anyone can tell the difference between gas- and battery-powered equipment. Neighbors or others could report the name of companies using the wrong kind. For instance, in my neighborhood in Ward 3, almost all crews, who work on a sequence of houses through the week, are part of Professional Gardens LLC, a company whose customers are mainly in DC but is based in College Park, Maryland. Once it understood the new requirements and changed its equipment, the environment in a multi-block neighborhood would change.

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Now I would like to mention three themes that have come through in my reporting over the years, and that I believe are relevant in your decision. They are:

- Rapid and accelerating *progress in battery technology*, which is making battery-powered lawn equipment practical and affordable, and which negates complaints that there is no feasible alternative to gas-powered equipment. This progress means that companies *can* change quickly to electric equipment *once they are required to do so*. But to avoid disrupting their existing business lines, they will delay doing this until required. (Much as auto makers delayed the shift to seatbelts and airbags, and to catalytic converters, and then rapidly put the new standards into effect.)
- The rapidly accumulating evidence about the *public-health damage* done by obsolete gas-powered equipment, and the disproportionate health burden imposed on lawn-crew workers – who are often unaware of the long-term risks they are running, and, as lower-income, often-immigrant workers are likely not to be covered by long-term health plans.
- The rapid shift in *press, political, and public opinion* on this topic, which is changing from “another first-world problem” to “this era’s ‘second-hand smoke.’”

To elaborate on each of these:

## 1. Batteries and related technology.

The technical barrier to wider use of battery-powered equipment has been the price/performance handicap, compared with gas-powered machinery. Batteries were heavy; they were expensive; they ran out of power too quickly; and they took too long to recharge.

“Were” is the relevant term in all those descriptions. The full scientific and venture-capital emphasis of the world technology industry is now focused on radically improving battery performance, because that is fundamental to so many other crucial products and technologies. Among them: electric cars; grid-scale electric storage systems; smartphones and other mobile apps; remote sensors and the “internet of things”; drones and larger-scale electric-power aviation; medical devices; and a host of other products.

Because of the research and investment emphasis, batteries are in the middle of a “Moore’s Law”-style revolution: they are becoming, simultaneously, *lighter, cheaper, longer-lasting, and quicker* to recharge. And, by all industry accounts, that progress is likely, if anything, to accelerate.

As a few data points:

- When I interviewed Steven Chu<sup>1</sup>, Nobel prize winner in physics and former U.S. Secretary of Energy, about battery technology just four years ago, the benchmark “price per kilowatt hour” of lightweight batteries was around \$500. Dr. Chu, who was then kicking off new battery research at Stanford, said that he hoped that price might go as low as \$200, by 2020 (with twice the power-per-pound of current batteries).
- In fact, by early in 2018, a leading industry journal reported<sup>2</sup> that the benchmark price per kilowatt hour had already fallen to \$139, with further dramatic improvements in sight. This publication, *Electronic Component News*, reported that the overall market for batteries was expected to increase *nine-fold* – by 900 percent – from 2016 to 2022, with dramatic price/performance/weight improvements in view.
- As another illustration: in 2012, a McKinsey report<sup>3</sup> estimated that the per-kilowatt price might fall as low as \$160 by 2025. Again, it is already far below that level, and decreasing fast.
- These improvements have come with “conventional” batteries – namely, incremental improvements in familiar Lithium-Ion technology. But research labs are introducing new storage technologies with the potential to offer “disruptive” improvements in performance, weight, and costs. (For instance, via Sila Nanotechnologies<sup>4</sup>, or “sulfur flow”<sup>5</sup> batteries.)

- Batteries are being applied in previously unimagined ways, because of these improvements. For instance, Pacific Gas and Electric, in California, is planning to replace<sup>6</sup> an entire natural gas-powered generator plant with a huge battery array.
- A recent headline<sup>7</sup> in the *Wall Street Journal* said, “The Battery Boost We’ve Been Waiting For Is Only A Few Years Out.”

In short, judging the practicality of leaf-blowers by comparing with the models of the past few years is like judging the size, power, and portability of today’s iPhones, based on the clunky mobile-phone technology of the 1990s.

Lawn-equipment companies recognize both the possibility of this new technology (for startup firms, looking for a niche) or the inevitability of it (for the established companies, which have introduced these models in places like California, where regulations require them – or in much of Europe, where this fits their “green technology” corporate image). Some examples:

- The DR Power Equipment<sup>8</sup> company features an expanding array of battery-powered equipment.
- The industry journal *Landscape Management* has published an article<sup>9</sup> called “Battery Boon: Breaking Down the Benefits of Battery-Powered Equipment.”
- *Popular Mechanics* magazine has reviewed<sup>10</sup> eight different battery-powered blowers that are feasible for home and commercial use. The manufacturers it covered included Worx, Black and Decker, Ego, Echo, DeWalt, Ryobi, Kobalt, and Craftsman. The point of the review was that this technology is becoming widespread. *Consumer Reports* has also covered a range<sup>11</sup> of quiet blowers from these manufacturers and others, including Toro, Stihl, NorthStar, and GreenWorks. In short, there is a wide range of usable battery-powered equipment.
- I have interviewed officials of several established companies, especially Stihl – which has its U.S. headquarters in Virginia Beach, Va., but which is headquartered in Germany and is a family-owned firm. In Europe, Stihl is very conscious of its reputation for corporate citizenship and environmental progressivism. In Europe, it has heavily promoted its extremely quiet battery-powered “BGA” models<sup>12</sup>. The company has also featured these in California, where dozens of cities have prohibited gas-powered models. As with other steps in “clean tech,” the representatives of Stihl and other companies I spoke with made clear that they could promote these models when they are required to – by regulations, or by challenges from smaller companies – but would be slow to disrupt their existing markets by making the shift on their own.

The main message to underscore here: quiet, clean battery-powered models are already practical, and will become dramatically more affordable and effective in the next few years. The companies *can* switch to them as soon as the rules change, but will be very slow to do so on their own.

## 2. Public health and environmental justice.

Along with the familiar public-health challenges of obesity and diabetes, medical experts are increasingly warning that hearing loss is a spreading, under-appreciated disorder. Early this year the Centers for Disease Control reported that roughly one quarter of Americans between the ages of 20 and 69 are suffering hearing loss – a significant increase from previous measures – and that higher levels of urban noise were a major contributor. As a story about the CDC report in the Washington Post<sup>13</sup> said:

Forty million American adults have lost some hearing because of noise, and half of them suffered the damage outside the workplace, from everyday exposure to leaf blowers, sirens, rock concerts and other loud sounds, the Centers for Disease Control and Prevention reported....

Hearing loss, which worsens with age, is the third most common chronic physical condition in the United States. It is twice as common as diabetes or cancer, according to the CDC.

Other witnesses are giving more detailed statements about the medical and epidemiological effects of increased noise, and the increased hearing loss that comes from it. I would like to highlight several themes that come through my own reporting.

- Hearing loss, unlike obesity or some other public health problems, is cumulative *and irreversible*. When the delicate cilia (or sensing hairs) that detect sound in the ear are damaged, they never grow back. Thus damage that people endure in early adulthood can hasten more profound hearing loss, as part of natural aging. “Noise is damaging hearing before anyone notices or diagnoses it,” Anne Schuchat of the CDC told the *Post*, in releasing the hearing-loss study. “Because of that, the start of hearing loss is underrecognized.”
- There is mounting evidence of noise and related hearing problems being connected with many other disorders, from obvious ones like insomnia and stress to less visible but even more serious consequences like elevated blood pressure, heart disease, and depression.

- A 2017 report in *Mother Jones*, called “Is Your Noisy Neighborhood Killing You,<sup>14</sup>” linked rising levels of urban noise to stress levels, learning problems, and cardiac disorders. It quoted Peter James, of the Harvard School of Public Health, as saying that “is not a wishy-washy amenity. It’s a potential public health factor we need to understand to make sure everyone has the same opportunities.”
- A recent medical report from the University of Michigan<sup>15</sup> investigated the connection between noise and cardiovascular disease. “The consensus is that if we can keep noise below 70 decibels on average, that would eliminate hearing loss,” Rick Neitzel, who led the study, said. “But the problem is that if noise is more than 50 decibels, there’s an increased risk of heart attack and hypertension. Noise at 70 decibels is not safe.”
- Anecdotally, many medical doctors have reported experiences that match the CDC’s report. Dr. Robert M. Meyers, a prominent ENT physician and Professor in the Department of Otolaryngology at the University of Illinois, Chicago, has told me, “I used to see people with hearing loss in their early 60s. Now, it’s in their 40s.” Dr. Meyers added, “When I see a crew using gas leaf blowers, I think: ten years from now, they’ll be deaf – and who will take care of them then?”
- Dr. Meyers’s comments underscore one of the plainest realities of the current lawn-care economy: namely, that the greatest risk of long-term disabling hearing loss falls on those in the worst position to protect themselves from it.

Although this is not true of all operations, as a generalization: the hired crews who operate leaf blowers are frequently immigrants or non-native speakers of English; are not well-educated or well-equipped to find legal or medical representation if they have troubles; are not covered by generous corporate medical plans; and are not likely to be working for the same company a decade from now, when the most serious hearing loss sets in. Indeed, a law firm in North Carolina has begun advertising<sup>16</sup> for clients who have suffered leaf blower-related hearing loss or other injuries, to represent them in class-action suits.

Tolerating the workers’ impending deafness, for the convenience of not changing to modern models of lawn equipment, is a very cruel, selfish, and unfair bargain.



### 3. Public Opinion.

Five years ago, disagreements about lawn equipment were often treated in the press as amusing neighborhood squabbles. That is distinctly not the case now – as the public health and environmental evidence has piled up, and as the options of battery-powered equipment have become more apparent.

For instance:

- In December, 2017 the *Wall Street Journal* published an article<sup>17</sup> about the disproportionate noise and pollution burden created by gas-powered equipment.
- In November, 2017, the national magazine *The Week* published an article with the headline: “The Government Must Regulate Lawn Equipment. Seriously<sup>18</sup>.”
- Also in November, 2017, KCET, the PBS television station in Los Angeles, had a special feature<sup>19</sup> (called “Blowing Concerns”) on the noise and pollution problems created by gas-powered lawn equipment.
- In March, 2017, the *New York Times* ran a column called “On Banning Leaf Blowers.”<sup>20</sup> It said,
 

“Two seemingly unrelated trends may also be contributing to the problem. The number of people working from home is growing and so too is the lawn care industry. Between 2002 and 2016, the number of professional ground maintenance workers, including supervisors, grew by 85 percent to 1.6 million...

“Susan Greeley [is] a film programmer who works out of her three-bedroom house in Maplewood [NJ]. She moved from Carroll Gardens, Brooklyn, three years ago in search of quiet but has instead found this: Every Tuesday, the landscapers arrive at 8 a.m. For the next seven hours, they move from one house to the next, filling her home with cacophony.

“At times, the noise is so loud she has to retreat to the basement to take work calls, and she is unable to watch the films she needs to review. ‘We were basically trapped in our home with this deafening noise and this disgusting smell,’ she said. ‘It’s far beyond an annoyance.’”
- The most direct statement was in an editorial-board statement from the *Newark Star-Ledger*, in New Jersey, published in 2017 in NJ.com<sup>21</sup>. Its title was: “No Place in Civilized Society for Gas-Powered Leaf Blowers.”

A decade ago – before the public-health evidence was in, and before the battery-powered options were available, and when the professional lawn-care industry was much smaller – this might have been a closer call. In current circumstances, a City Council vote requiring a shift to battery-powered equipment has community interest, workers’ interest, public health, and technological momentum on its side.

Thank you for your attention and the opportunity to contribute to this discussion. In our community’s interest, and as an example from the nation’s capital, I hope you will support and enact this bill.

## Footnotes

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- <sup>1</sup> <https://www.theatlantic.com/magazine/archive/2014/05/a-better-battery/359811/>
  - <sup>2</sup> <https://www.ecnmag.com/article/2018/03/li-ion-batteries-eke-out-performance-gains-demand-surges>
  - <sup>3</sup> <https://www.mckinsey.com/business-functions/sustainability-and-resource-productivity/our-insights/battery-technology-charges-ahead>
  - <sup>4</sup> <https://www.technologyreview.com/s/610792/this-battery-advance-could-make-electric-vehicles-far-cheaper/>
  - <sup>5</sup> <http://news.mit.edu/2016/battery-challenges-cost-and-performance-1102>
  - <sup>6</sup> <https://www.greentechmedia.com/articles/read/pge-proposes-worlds-biggest-batteries-to-replace-south-bay-gas-plants>
  - <sup>7</sup> <https://www.wsj.com/articles/the-battery-boost-weve-been-waiting-for-is-only-a-few-years-out-1521374401>
  - <sup>8</sup> <https://www.drpower.com/>
  - <sup>9</sup> <http://landscapemanagement.net/battery-boon-breaking-down-the-benefits-of-battery-powered-equipment/>
  - <sup>10</sup> <https://www.popularmechanics.com/home/tools/g2195/best-battery-powered-leaf-blowers/>
  - <sup>11</sup> <https://www.consumerreports.org/lawn-garden/quietest-leaf-blowers-and-outdoor-power-gear/>
  - <sup>12</sup> <https://www.youtube.com/watch?v=2c2jCdnLQCA>
  - <sup>13</sup> <https://www.washingtonpost.com/news/to-your-health/wp/2017/02/07/a-quarter-of-adults-in-the-u-s-have-hearing-loss-because-of-noise/>
  - <sup>14</sup> <https://www.motherjones.com/environment/2016/12/city-noise-pollution-health-school-learning/>
  - <sup>15</sup> <http://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2018/04/16/seeking-a-quiet-place-in-a-nation-of-noise>
  - <sup>16</sup> <https://www.bollingerlawfirmnc.com/blog/2017/09/leaf-blowers-other-equipment-could-cause-workplace-illness.shtml>
  - <sup>17</sup> <https://www.wsj.com/articles/that-ear-splitting-leaf-blower-it-also-emits-more-pollution-than-a-car-1513346400>
  - <sup>18</sup> <http://theweek.com/articles/739688/government-must-regulate-lawn-equipment-seriously>
  - <sup>19</sup> <https://www.kcet.org/shows/social-connected/episodes/cycle-of-disrepair-and-blowing-concerns>
  - <sup>20</sup> <https://www.nytimes.com/2017/03/17/realestate/on-banning-on-leaf-blowers.html>
  - <sup>21</sup> [https://www.nj.com/opinion/index.ssf/2017/12/no\\_place\\_in\\_civilized\\_society\\_for\\_gas-powered\\_leaf.html](https://www.nj.com/opinion/index.ssf/2017/12/no_place_in_civilized_society_for_gas-powered_leaf.html)