QC/PDX

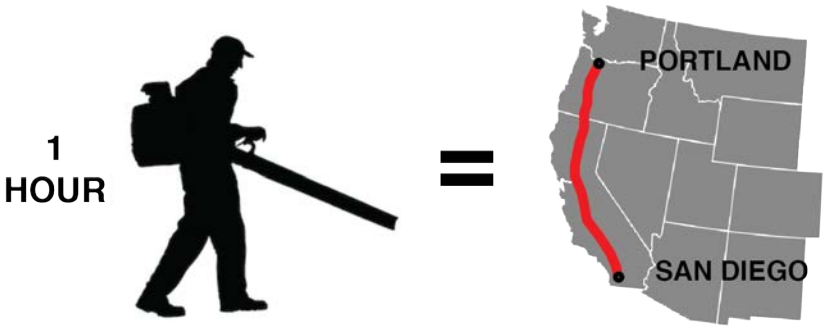
GAS POWERED versus BATTERY POWERED LEAF BLOWERS

1. Emissions – Pollution and CO2
2. Noise
3. Productivity – Force & Runtime
4. Operating Cost

EMISSIONS – MORE AIR POLLUTION THAN CARS

QC/PDX

	Gas Powered Leaf Blower	Ford F-150 Raptor	
Non Methane Hydrocarbons	**1.495 g/min**	**0.005 g/min**	*300X more*
Oxides of Nitrogen	**0.010 g/min**	**0.005 g/min**	*2X more*
Carbon Monoxide	**6.445 g/min**	**0.276 g/min**	*23X more*



SMOG FORMING POLLUTION FROM 1100 CAR MILES

From: Edmunds sponsored testing at AAA Automotive Research Center, Diamond Bar, CA 2011
California Air Resources Board – Small Engine Fact Sheet, 2017

QC/PDX

TOXIC EMISSIONS

	Gas Powered		Battery Powered
Non Methane Hydrocarbons	**Yes**	*Health risk and smog forming pollutants. CA estimates small engines will be #1 producer of these emissions by early 2020's*	**No**
Oxides of Nitrogen	**Yes**		**No**
Carbon Monoxide	**Yes**		**No**
Benzene	**Yes**	*Known by EPA and Health organizations to increase risk of cancer, respiratory, cardiovascular and neurological disease*	**No**
Butadyene	**Yes**		**No**
Formaldehyde	**Yes**		**No**
Fine Particulates	**Yes**		**No**

From: Edmunds sponsored testing at AAA Automotive Research Center, Diamon Bar, CA 2011
EPA - National Emissions from Lawn and Garden Equipment, 2015
California Air Resources Board – Small Engine Fact Sheet, 2017

EMISSIONS – GREENHOUSE GASES

QC/PDX

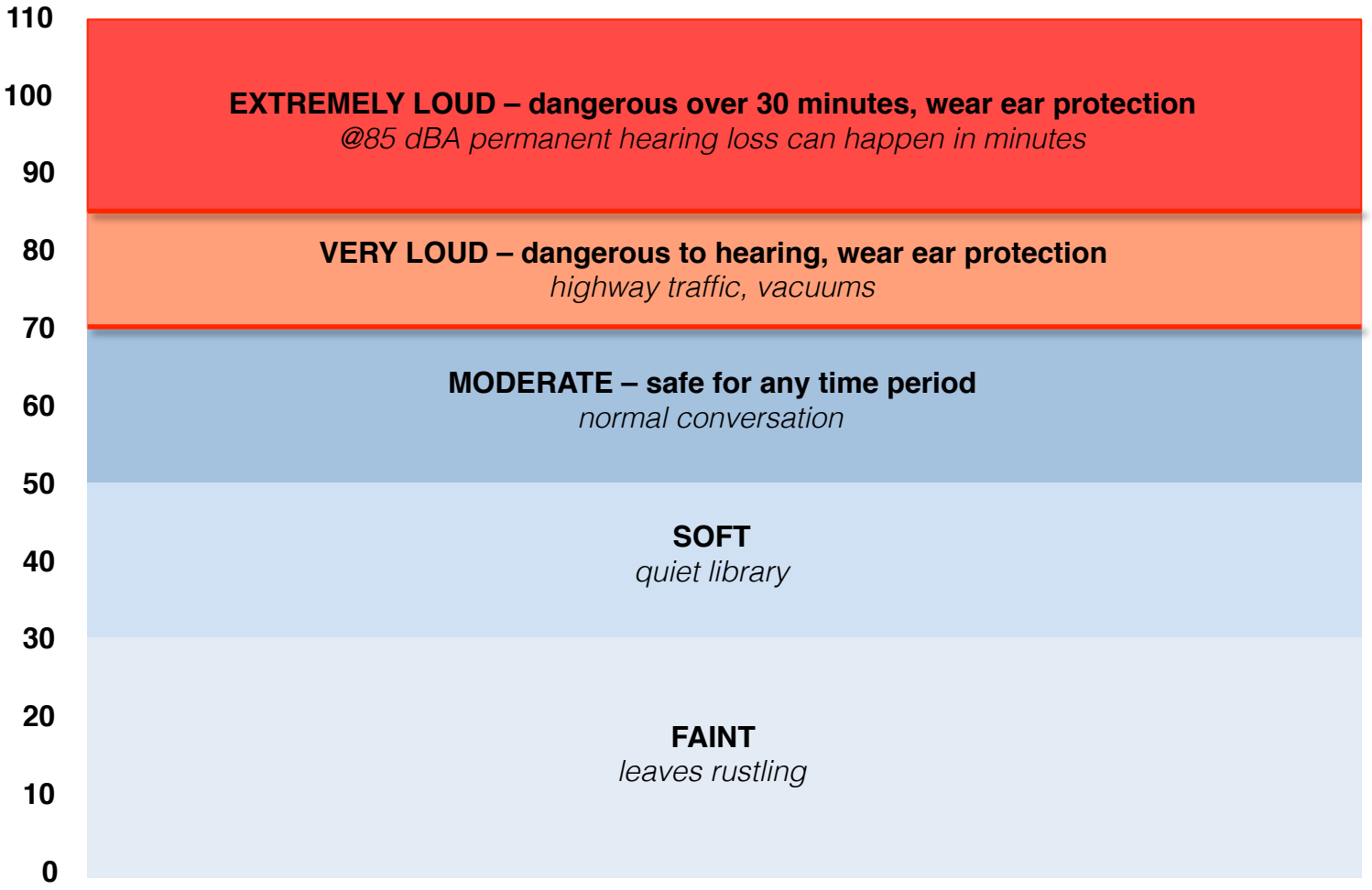
	Gas Powered	Battery Powered	
Fuel Consumption	**.46 gal + oil/hr**	**0.550 kWh/h**	
CO2e Production	**12 lbs/hr**	**0.478 lbs/hr**	*25X less*
Yearly CO2e Production			**Charged w/ RE**
@ 1 Hr / Day:	**2,885 lbs**	**117 lbs**	**0 lbs**
@ 2 Hr / Day:	**5,770 lbs**	**233 lbs**	**0 lbs**
@ 5 Hr / Day:	**14,426 lbs**	**583 lbs**	**0 lbs**

Typical Automobile produces 11,500 lbs CO2e per year

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

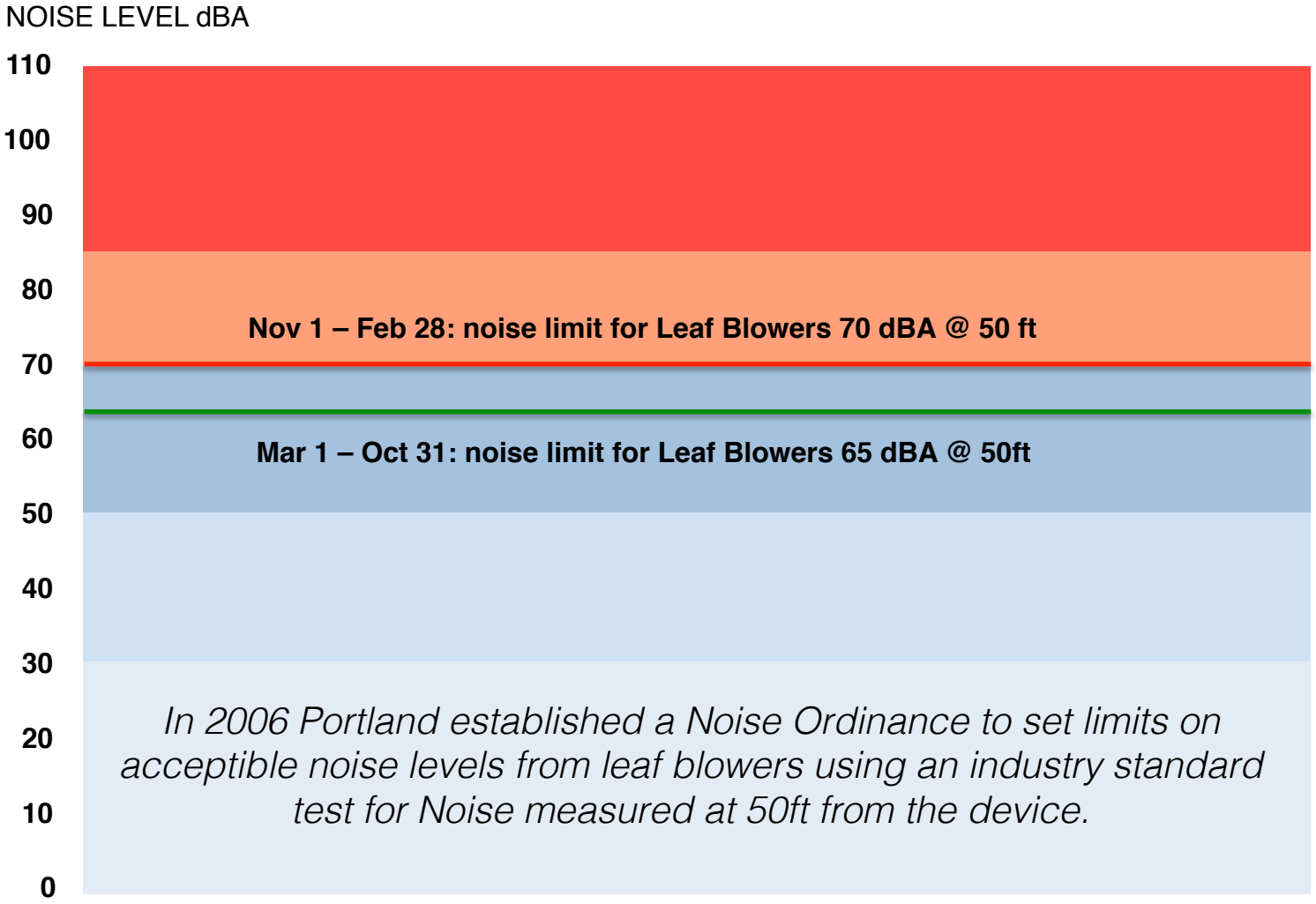
NOISE LEVELS AND SAFETY

NOISE LEVEL dBA – Percieved as a doubling of “loudness” every 10DBA



From: American Academy of Audiology and American Speach-Language-Hearing Association (ASHA)

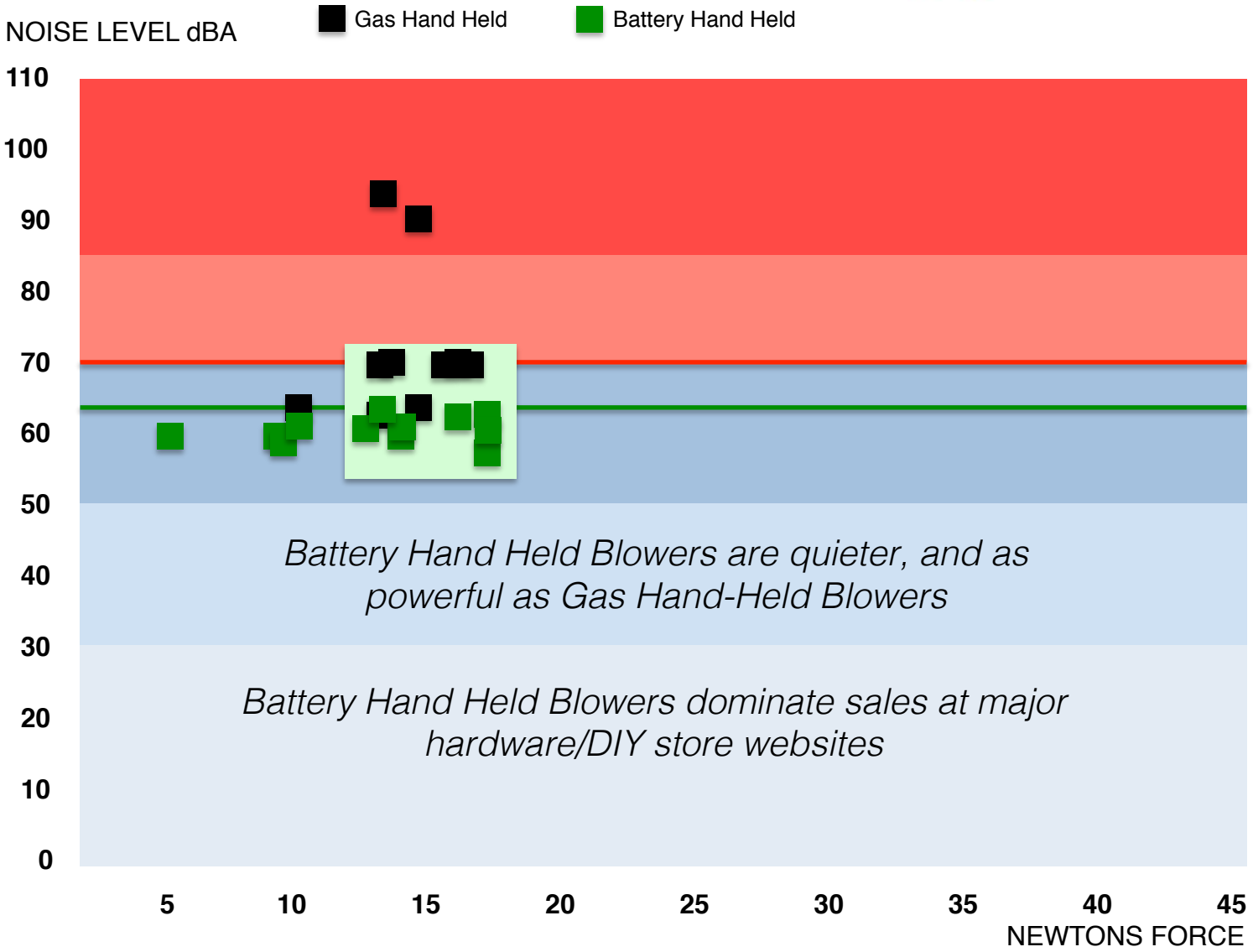
PORTLAND NOISE ORDINANCE 18.10.035 - LEAF BLOWERS



From: City of Portland - Charter, Code and Policies

HAND HELD LEAF BLOWERS – NOISE vs FORCE

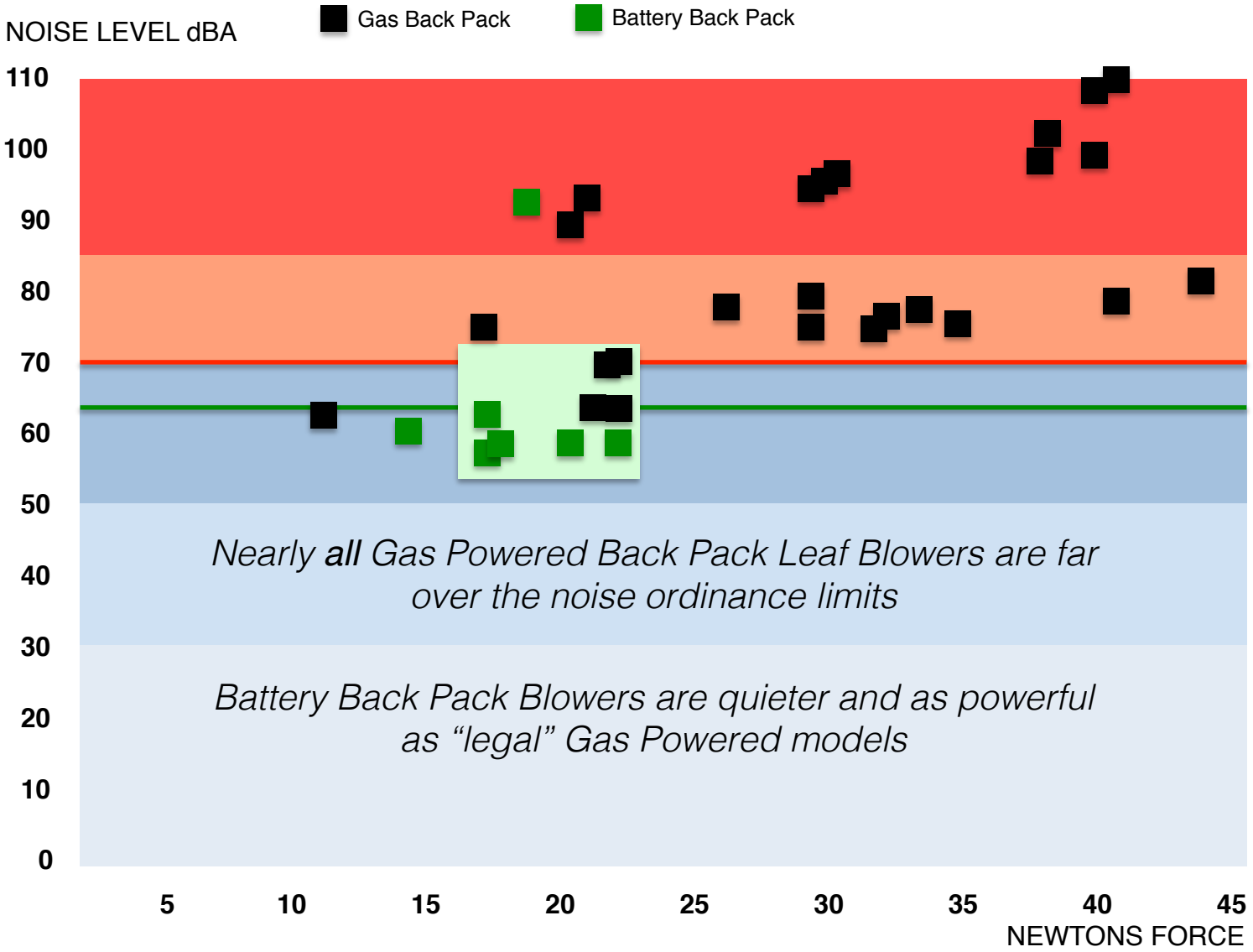
QC/PDX



From: Manufacturers website data on force and certified noise ratings as per ANSI B175.2-2000
Echo, Stihl, Husqvarna, Makita, EGO, Oregon

BACK PACK LEAF BLOWERS – NOISE vs FORCE

QC/PDX



From: Manufacturers website data on force and certified noise ratings as per ANSI B175.2-2000
Echo, Stihl, Husqvarna, Makita, EGO, Oregon

BACK PACK LEAF BLOWERS – WEIGHT AND RUN TIME

QC/PDX

	Gas Powered	Battery Powered
Weight w/ Fuel/Batteries:	**24 – 31lbs**	**22 – 34 lbs**
Run Time w/ Full Tank/Charge:	**47 – 68 min**	**53 – 174 min** (Depending on battery configuration)

Battery Back Pack Blowers are similar in weight and have longer "single charge" run times than Gas Blowers

From: Manufacturers website data and Online Tool Reviews - Echo, Stihl, Husqvarna, Makita, EGO, Oregon

BACK PACK LEAF BLOWERS – OPERATING COST

QC/PDX

	Gas Powered	Battery Powered
Fuel / hr*	**.46 gal gas + 1.2 oz oil**	**0.550 kWh**
Fuel Cost $ / Hour:	**$2.22**	**$0.07** *30X less*
		$550 Cost of battery that runs for 1 hr + charger *Prices are dropping by 6.5% per year*
Total 2 Yr Fuel Cost**		
@ 1 Hr / Day:	**$1,090**	**$585** *- includes $550 for batteries/charger*
@ 2 Hr / Day:	**$2,180**	**$1,170** *- includes $1,100 for batteries/chargers*
@ 5 Hr / Day:	**$5,445**	**$2,925** *- includes $2,750 for batteries/chargers*

Battery Back Pack Blowers are far cheaper to operate than Gas Blowers

From: Manufacturers website data and Online Tool Reviews - Echo, Stihl, Husqvarna, Makita, EGO, Oregon

* Leaf Blower equipment costs are similar for battery and gas blowers excluding batteries

**2 Year Warranties are standard for all equipment and batteries

SUMMARY

QC/PDX

Battery Powered Leaf Blowers

Zero Air Pollution, Toxic Solid Waste, Fuel Spills

*Zero Carbon Emissions**

Zero maintenance

Similar Weight to Gas Blowers

Comparable Run Times

As Powerful as “legal” Gas Blowers

Quieter than Gas Blowers

Far cheaper to Operate

* When charged with Renewable Energy

SUMMARY

QC/PDX

Gas Powered Leaf Blowers are Dangerous

Toxic emissions and extreme noise endangers the health of workers and the public

Nearly all gas blowers are out of compliance with Portland Noise Ordinance

Gas Blowers burn fossil fuels, contributing to the climate crisis

Safe, Powerful, Cost Effective alternatives are readily available

An equitable transition away from Gas Powered Leaf Blowers is in the best interests of the city and the residents of Portland