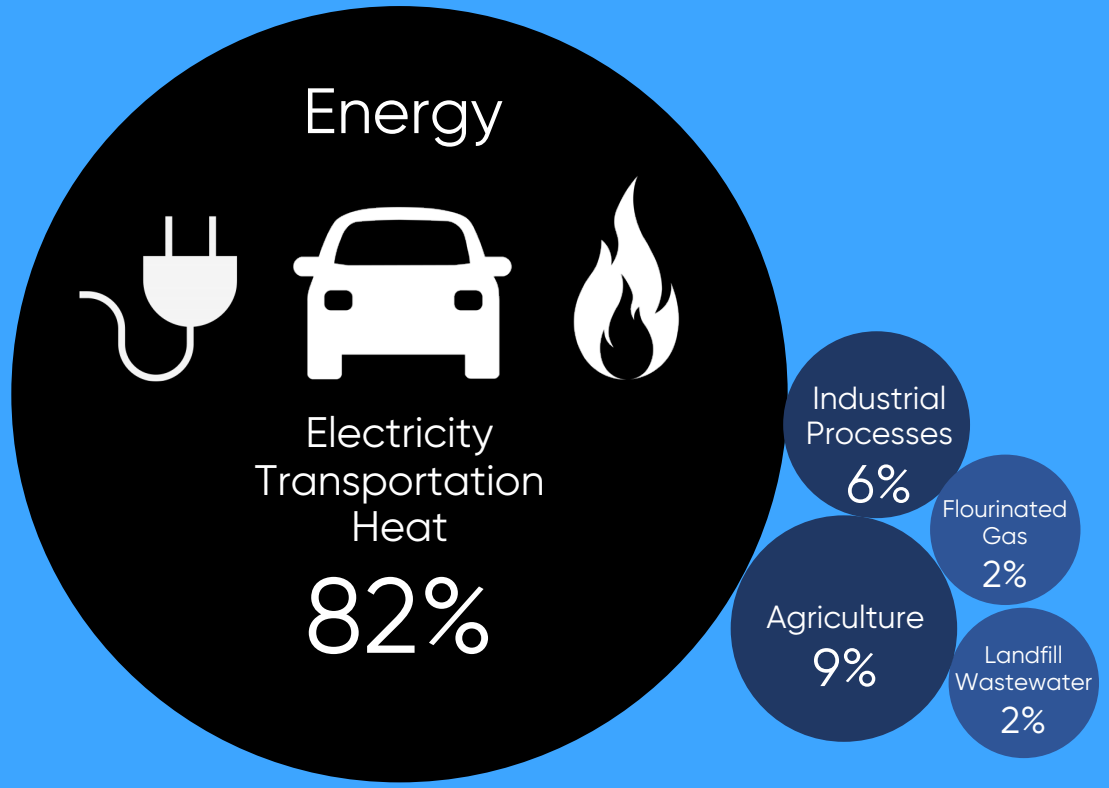
electrify now

empowering everyone to create
our clean energy future


Man-made carbon emissions are overheating the earth.
Where do carbon emissions come from?
What can I do about it?

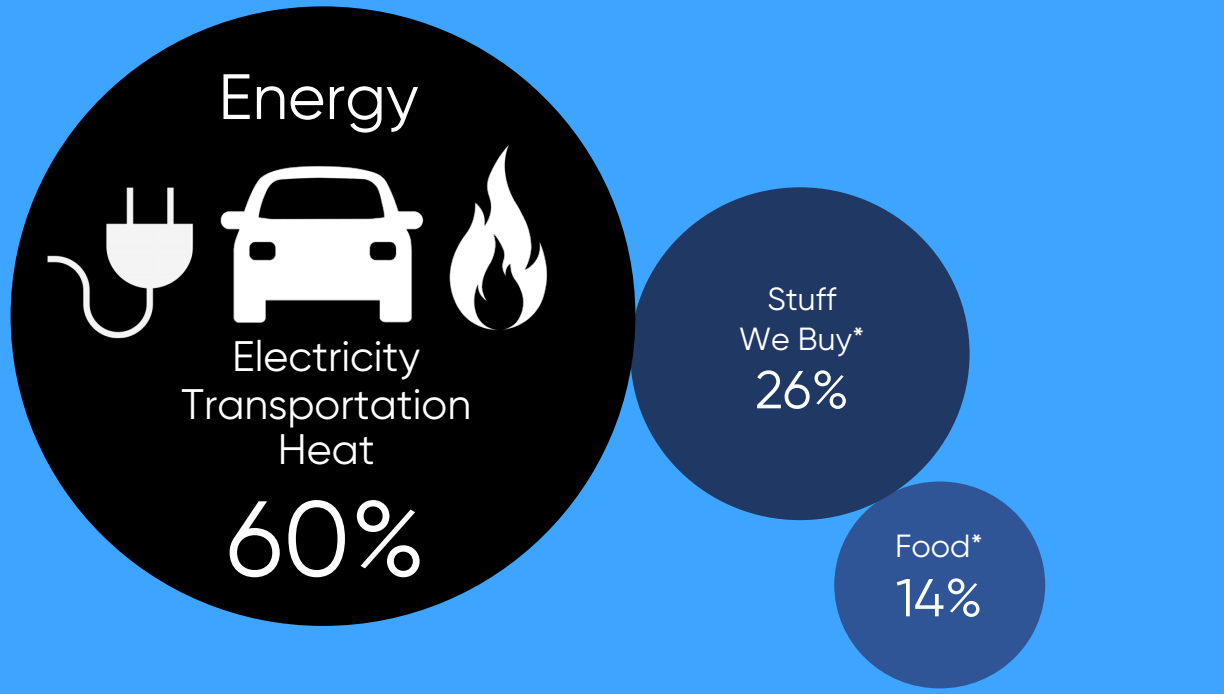
Burning fossil fuels for energy is the #1 source of global carbon emissions



U.S. SOURCES OF GREENHOUSE GAS EMISSIONS

US EPA Greenhouse Gas Inventory 2019

U.S. Household Carbon Emissions are mostly from the energy we consume



*Lots of embedded energy here too...

U.S. HOUSEHOLD EMISSIONS
Union of Concerned Scientists

Bad News

We have to stop burning fossil fuels

Electricity

Coal & Natural Gas

Transportation

Gasoline / Diesel

Heat

Natural Gas, Propane, Fuel Oil

Good News

Wind and solar are now the lowest cost sources of new energy

Levelized Cost of Energy – Unsubsidized Analysis from Lazard – Dec 2021

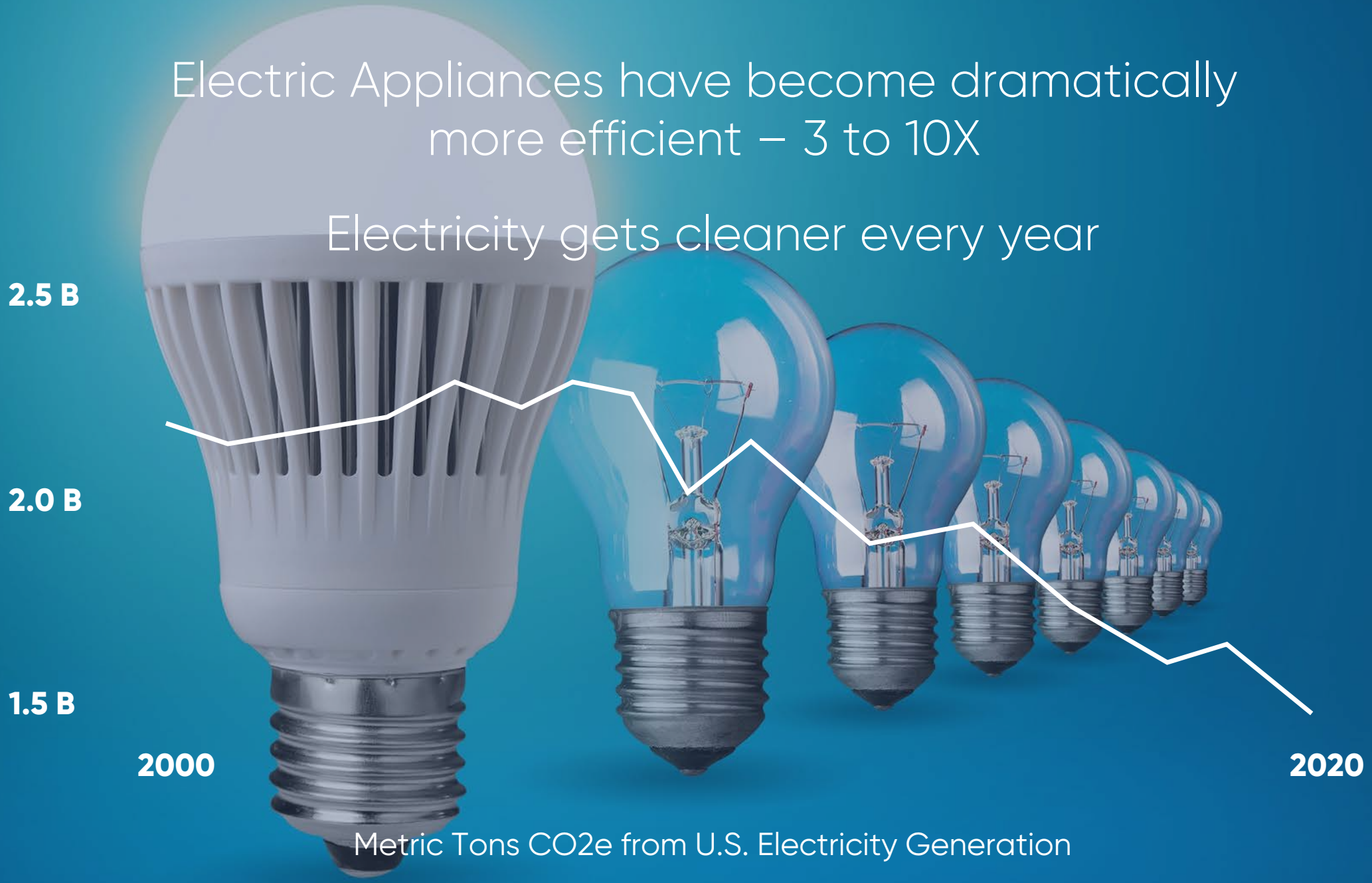
Good News

Battery Storage Costs have also plummeted

US Department of Energy, Electric Vehicle Battery Pack Cost, October 2021

Electric Appliances have become dramatically more efficient – 3 to 10X

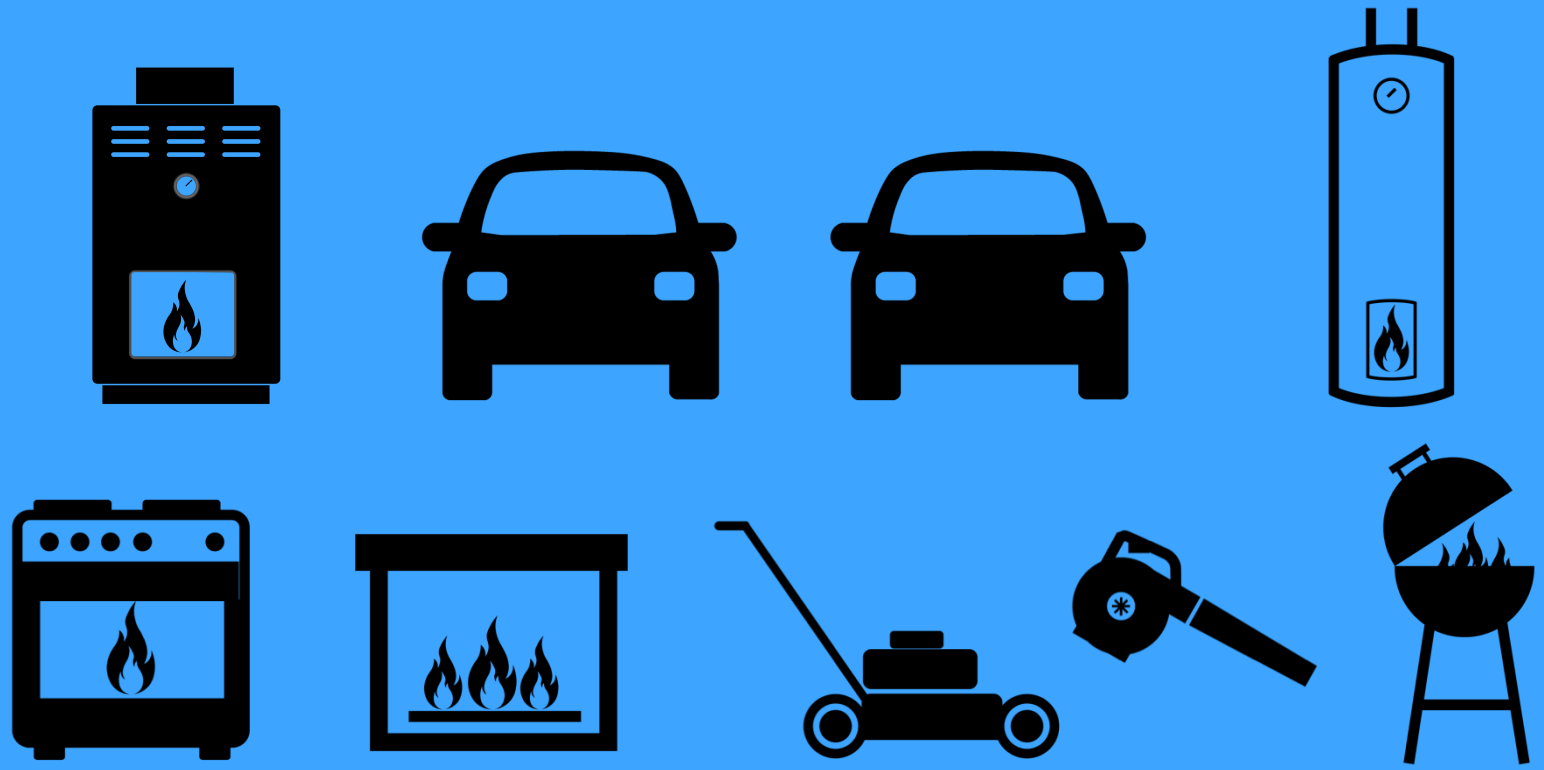
Electricity gets cleaner every year



Metric Tons CO2e from U.S. Electricity Generation


Electrify Everything
A sustainable energy future where the wind and sun creates clean electricity to power ALL our primary energy needs
Electricity, Transportation and Heat

Our homes are full of fossil fuel burning sources of emissions – a typical household produces over **20 Tons** of heat trapping emissions per year from energy consumption



The average household spends over
$4,000 per year on fossil fuels:
electricity bills, gasoline costs, heating bills

$900
Electricity

$1,400
Gasoline

$1,400
Gasoline

$700
Natural Gas

from U.S. Energy Information Administration – Residential Energy Consumption Survey 2015, US Dept of Transportation Average Vehicle Miles Travelled 2016, Avg MPG from EPA 2017, Average costs of Electricity and Natural gas from EIA

US Households collectively spend over

$500 Billion per year

on fossil fuels based energy

(Clean energy investment in the U.S. hit $55.5 Billion in 2019*)

*Reuters – January 2020

What if we spent our household energy dollars on funding the solution rather than continuing to fund the problem?

What if doing that made our lives better and saved us money on energy costs?

electrify!

1. Clean up your electric supply

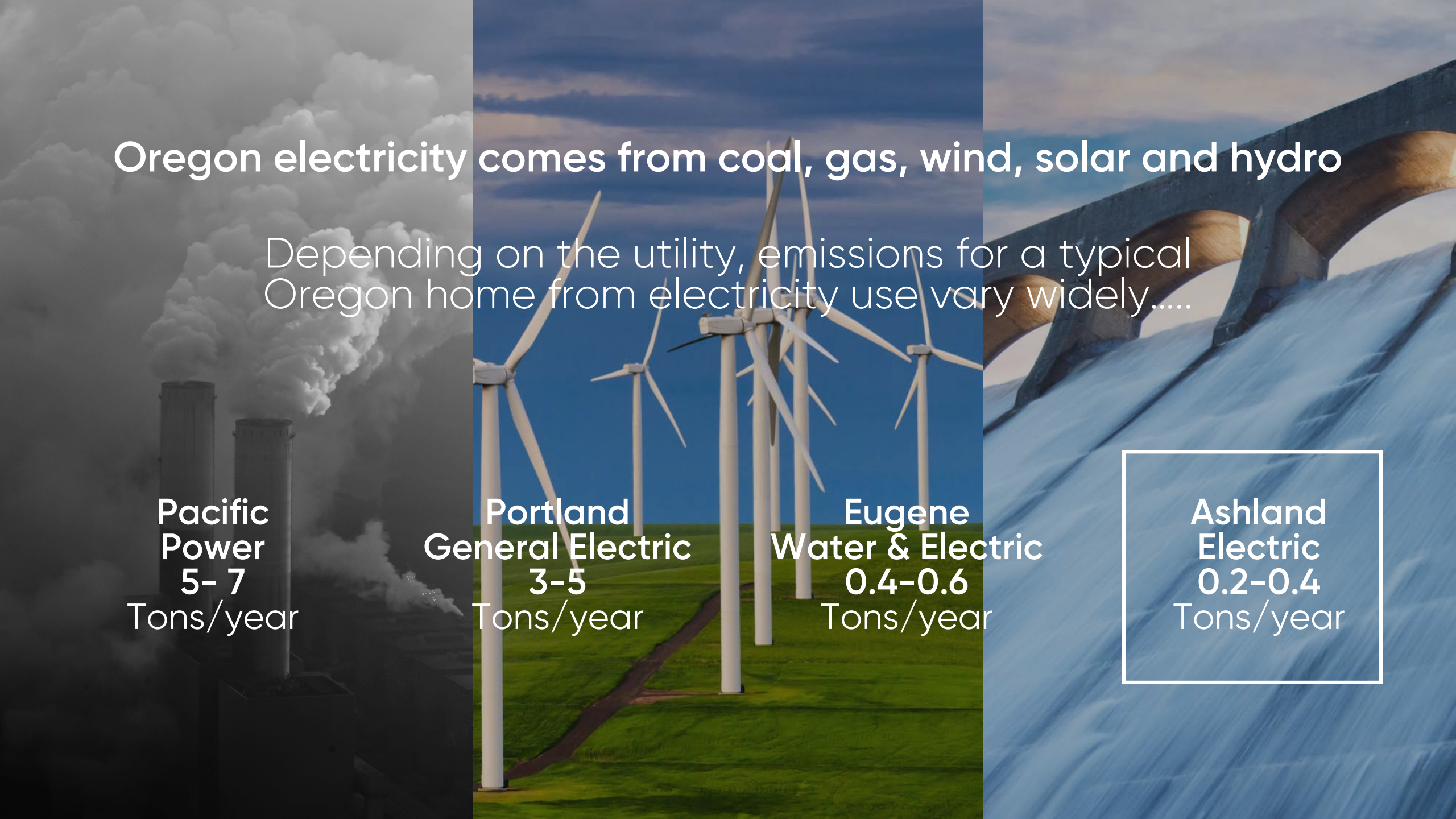
2. Electrify your home

3. Electrify your ride

4. Electrify Everyone

1. Clean up your electric supply

from US EPA - Sources of Greenhouse Gas Emissions 2019, Energy Innovation - Energy Policy Simulator, and US Energy Information Administration Residential Energy Consumption Survey 2015



Oregon electricity comes from coal, gas, wind, solar and hydro

Depending on the utility, emissions for a typical Oregon home from electricity use vary widely.....

Pacific Power
5- 7
Tons/year

Portland General Electric
3-5
Tons/year

Eugene Water & Electric
0.4-0.6
Tons/year

Ashland Electric
0.2-0.4
Tons/year


Oregon is headed to 100% Clean Energy by 2040
We can all get 100% clean energy right now

Power your life with zero emissions energy

Help create new clean energy generation

Green Power plans

Rooftop Solar

Community Solar

2. Electrify your home

Methane Gas – Not the clean fuel advertised

Burning natural gas for heat produces over 25% of US emissions.

New information about methane leakage shows that total emissions from methane are similar to coal.

from US EPA Greenhouse Gas Inventory 2019, from “How Green is Blue Hydrogen”, Howarth, Jacobson July2021

Carbon emissions from a Gas Heated Home are greater than the emissions from an automobile

(but harder to see)

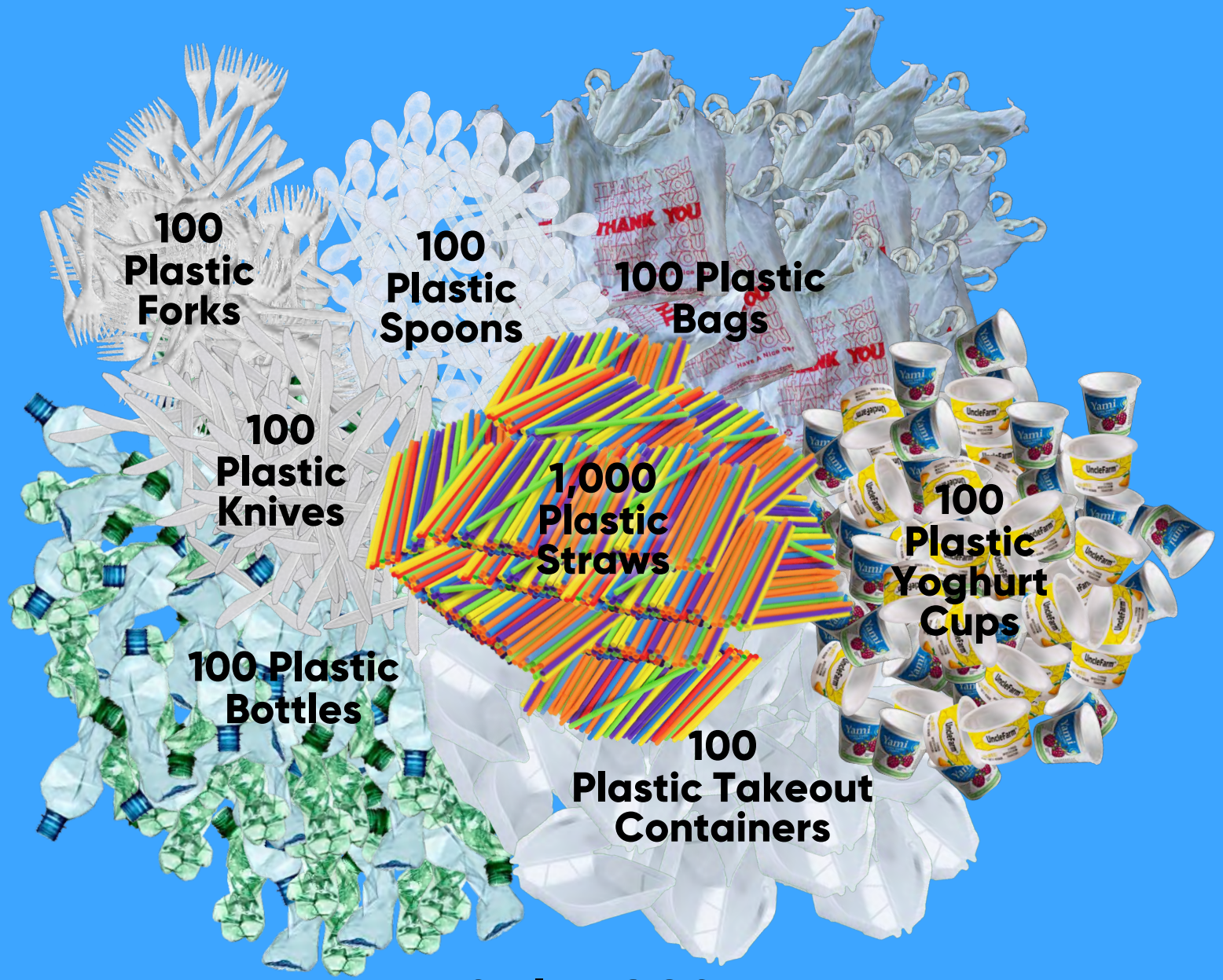
4-8 Tons CO2e/yr

5-11 Tons CO2e/yr

From U.S. Energy Information Administration – Residential Energy Consumption Survey 2015, DEQ carbon intensity of fuels in Oregon, US Dept of Transportation

Gas Furnace:
4-8 TONS CO2e/yr

Gas Water Heater:
1-3 TONS CO2e/yr



23 lbs CO2e

1 Day of Heating with Natural Gas

43 lbs CO2e

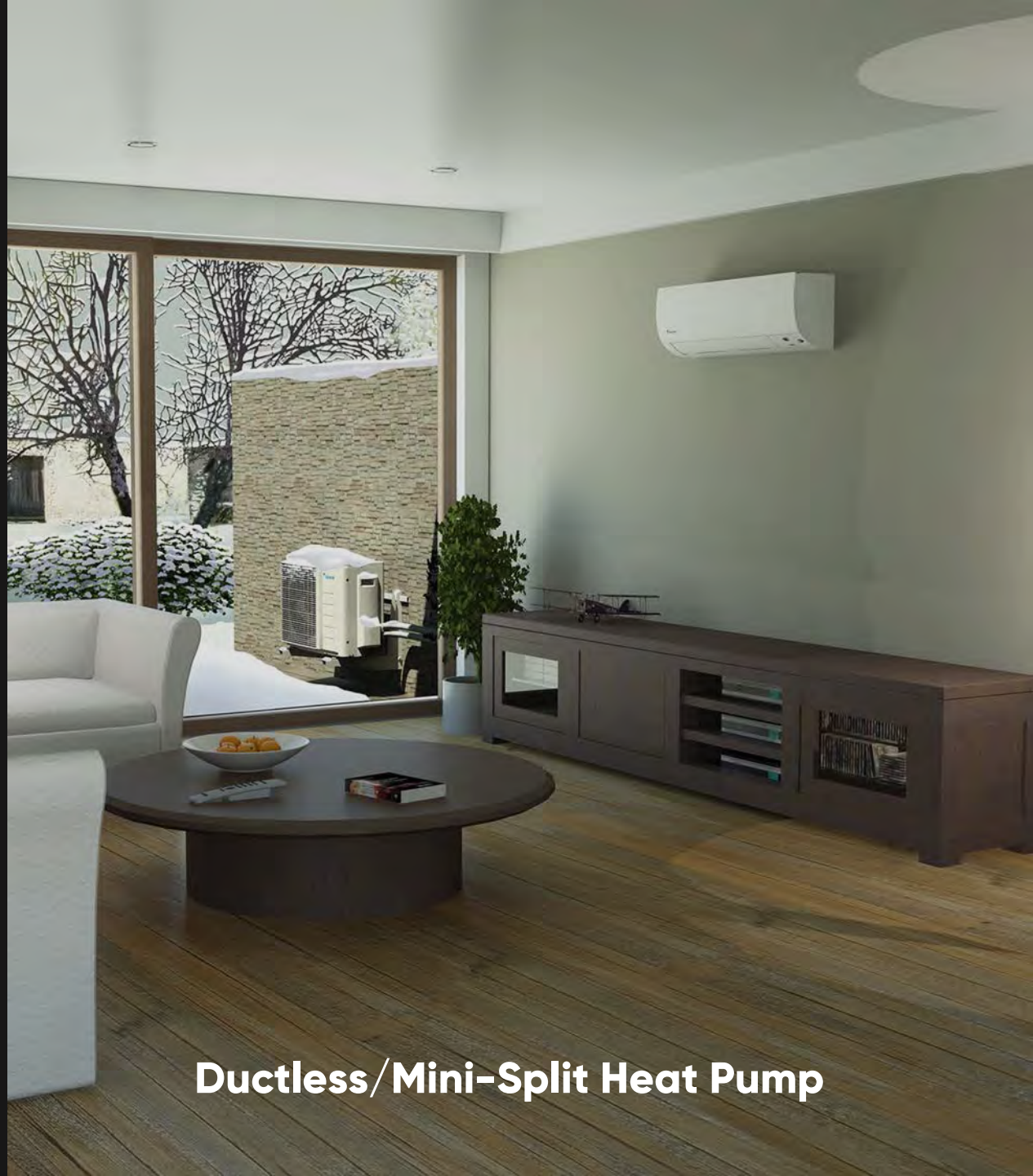
From: product weights from manufacturers, plactics carbon intensity from US EPA, fuel carbon intensity from Oregon DEQ – extraction, distribution and combustion, Average Oregon Residential Gas Consumption from American Gass Association


Filling up.....

Heat Pumps

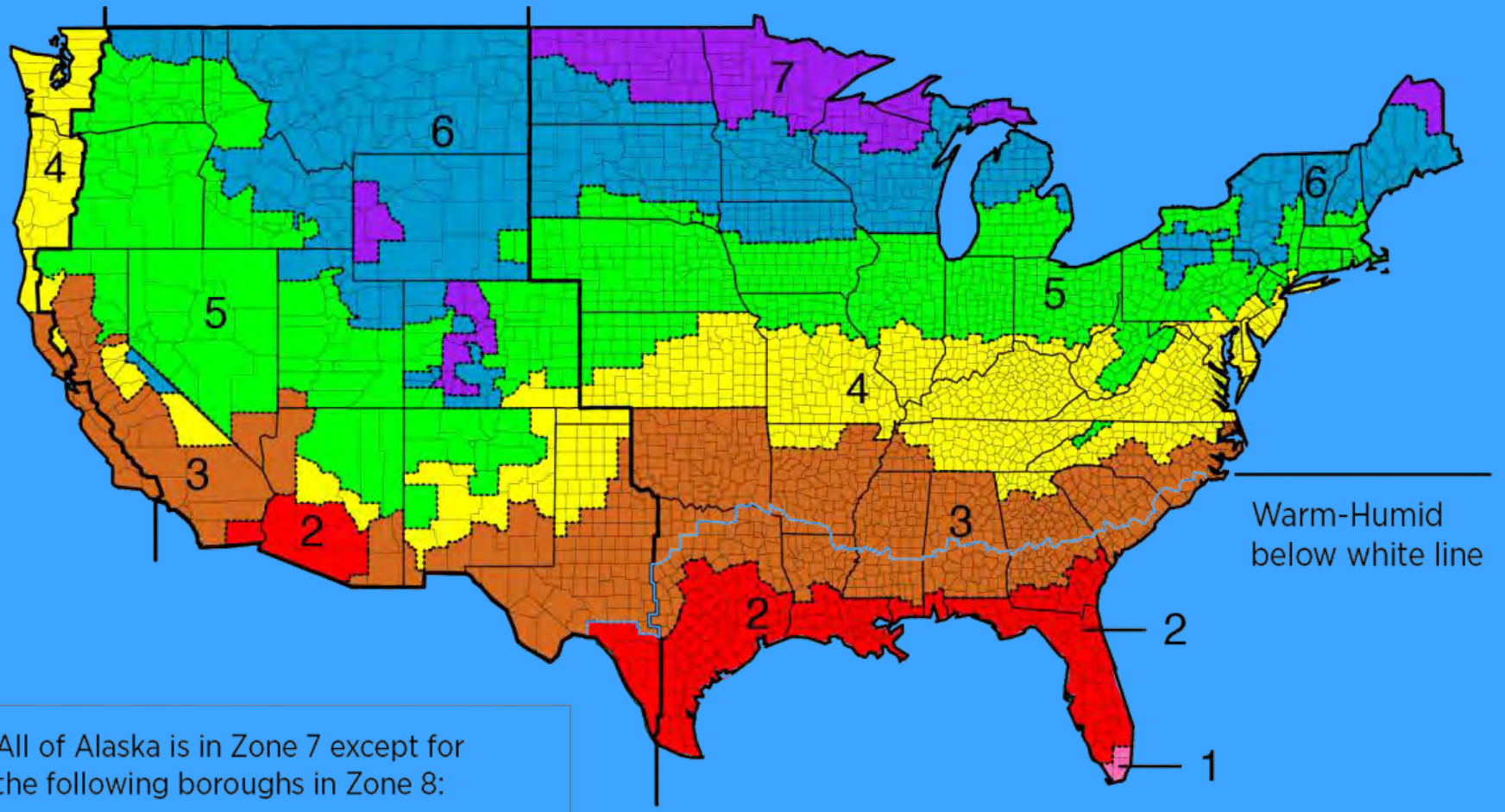
Δ 60 Degrees +

Ducted/Central Heat Pump



Ductless/Mini-Split Heat Pump

Heat Pumps are effective in Zones 1-5 and Zone 6 with well insulated buildings and all zones with backup heating



All of Alaska is in Zone 7 except for the following boroughs in Zone 8:

Bethel, Northwest Arctic, Dellingham, Southeast Fairbanks, Fairbanks N. Star, Wade Hampton, Nome, Yukon-Koyukuk, North Slope

Zone 1 includes Hawaii, Guam, Puerto Rico, and the Virgin Islands

More warmth for the money

Cost of 1MMBTU of Delivered, Useful Heat – Ashland

$52

Electric Furnace

$1,500 – $2,600/yr

$36

Electric Baseboard

$1,100 – $1,800/yr

$26

Older Gas Furnace

$790 – $1,300/yr

$17

Best Gas Furnace

$500 – $850/yr

$16

Best Gas Furnace+HP

$490 – $825/yr

$14

Variable Speed HP

$435 – $725/yr

$12

Ductless HP

$365 – $610/yr

$11

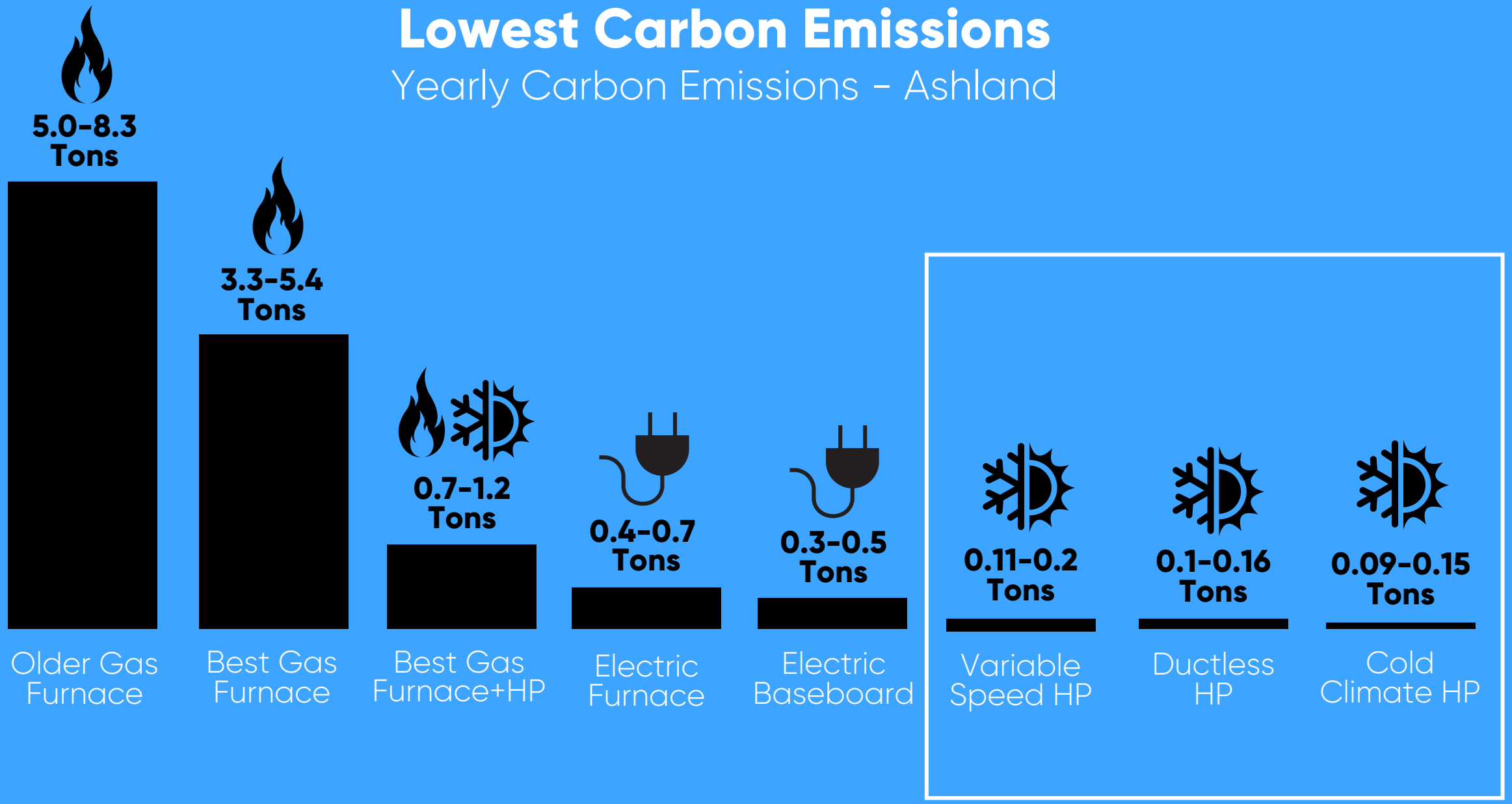
Cold Climate HP

$340 – $560 /yr

Typical Oregon heating load of 30 – 50MMBTU, utility costs for Ashland 2022

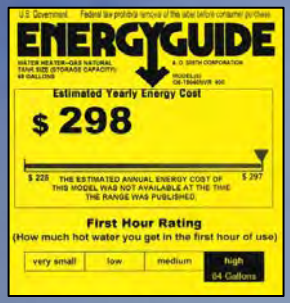
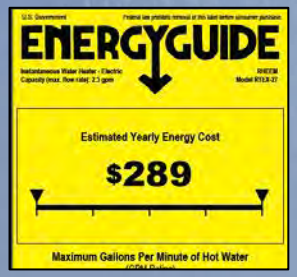
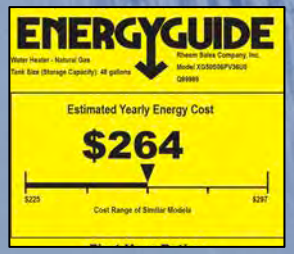
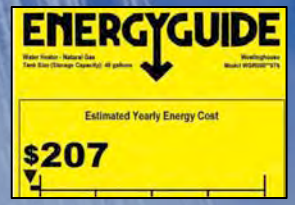
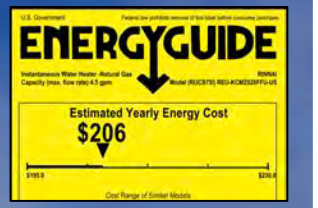
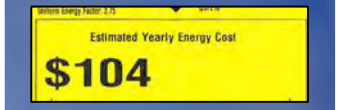
Lowest Carbon Emissions

Yearly Carbon Emissions - Ashland



Typical Oregon heating load of 30 – 50MMBTU, DEQ Fuel Pathways values for carbon intensity of fuels in Ashland

Lowest Utility Bills

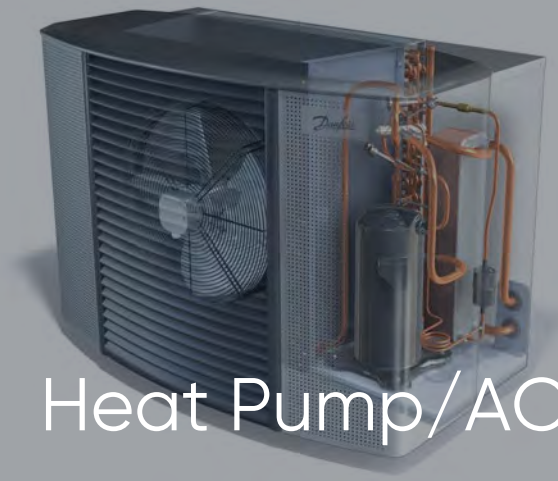
Best Electric Storage UEF 0.93	Cheapest Gas Storage UEF 0.62	Electric Tankless UEF 0.98	Typical Gas Storage UEF 0.70	Best Gas Storage UEF 0.90	Gas Tankless UEF 0.90	Good Heat Pump UEF 3.75
						
$520	**$575**	**$540**	**$1,040**	**$2,745**	**$1,135**	**$1,200**
						
$419/yr	**$298/yr**	**$289/yr**	**$264/yr**	**$207/yr**	**$206/yr**	**$104/yr**

from US EPA 50 gal water heaters Energy Guide labels, prices from Home Depot or internet

Lowest Carbon Emissions – Ashland

Cheapest Gas Storage UEF 0.62	Typical Gas Storage UEF 0.70	Best Gas Storage UEF 0.90	Gas Tankless UEF 0.90	Best Electric Storage UEF 0.93	Electric Tankless UEF 0.98	Good Heat Pump UEF 3.75
						
$575	**$1,040**	**$2,745**	**$1,135**	**$520**	**$540**	**$1,200**
2.5 Tons	**2.2 Tons**	**1.7 Tons**	**1.6 Tons**	**0.1 Tons**	**0.08 Tons**	**0.03 Tons**

from US EPA 50 gal water heaters Energy Guide labels, prices from Home Depot or internet, DEQ Fuel Pathways values for carbon intensity of fuels in Ashland



Heat Pump/AC

Heat Pump
Water Heater

Electric Heat Pumps - no compromise comfort

ZERO EMISSIONS

Avoid 5-11 Tons CO2/year

Superior Indoor Air Quality

Methane Gas

- CO and NO2 emissions are linked to higher risk of asthma, especially in children
- Peak indoor air pollution can reach levels that would be illegal outdoors
- Leak Methane even when not in use

0.3-0.7 Tons/yr

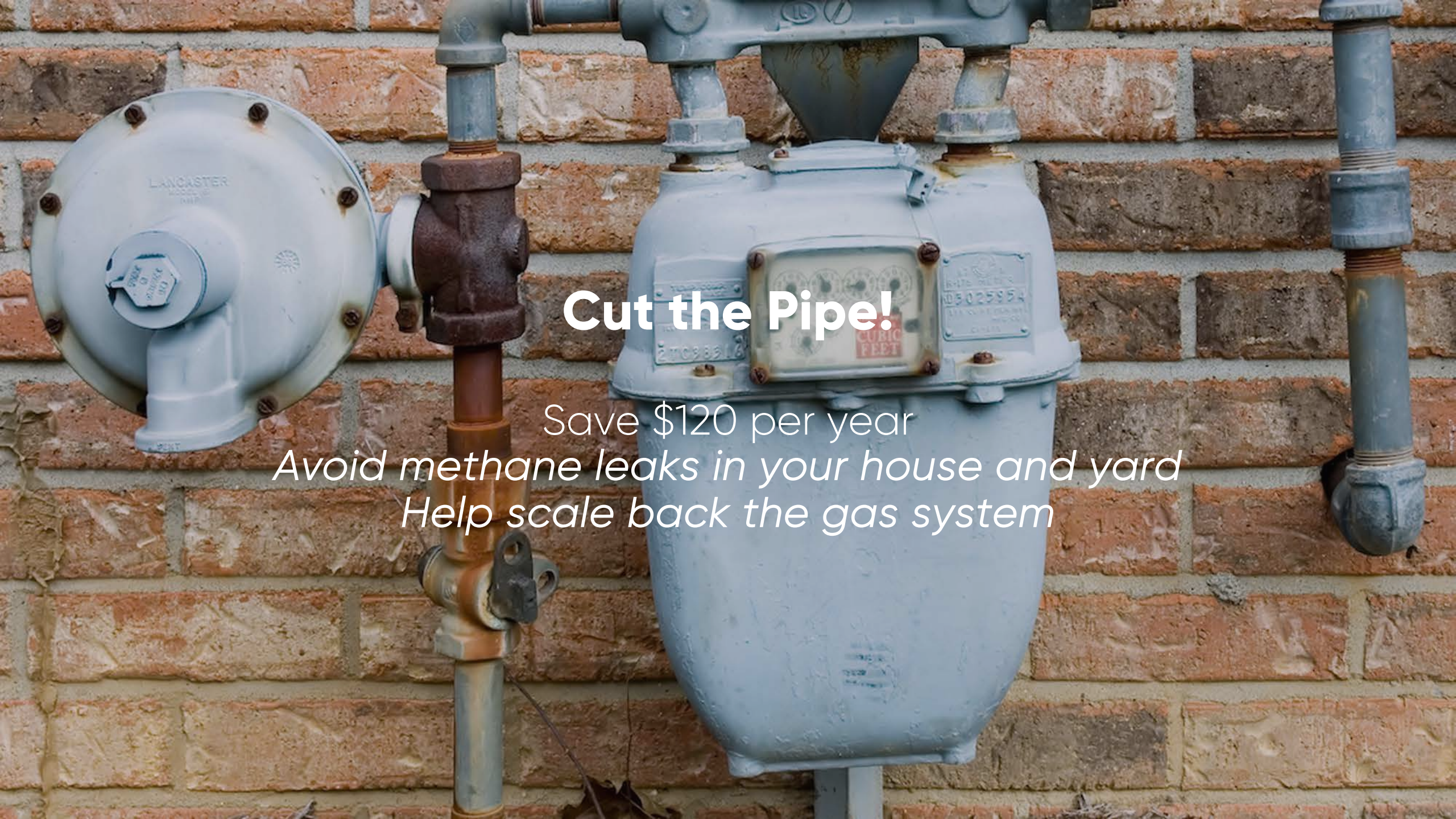
Induction

- Better control and faster heating
- Much easier to clean
- Safer – cool to the touch
- **ZERO** CO and NO2 emissions
- Less than 1/10th the carbon emissions

0.01-0.02 Tons/yr

from: Health Effects from Gas Stove Pollution, RMI, Physicians for Social Responsibility, Sierra Club, Mothers Out Front, May 2020
DEQ Fuel Pathways values for carbon intensity of fuels in Ashland

Superior Air Quality
No messy fuel refills and fumes
Lower operating expenses
Easier cleaning and maintenance



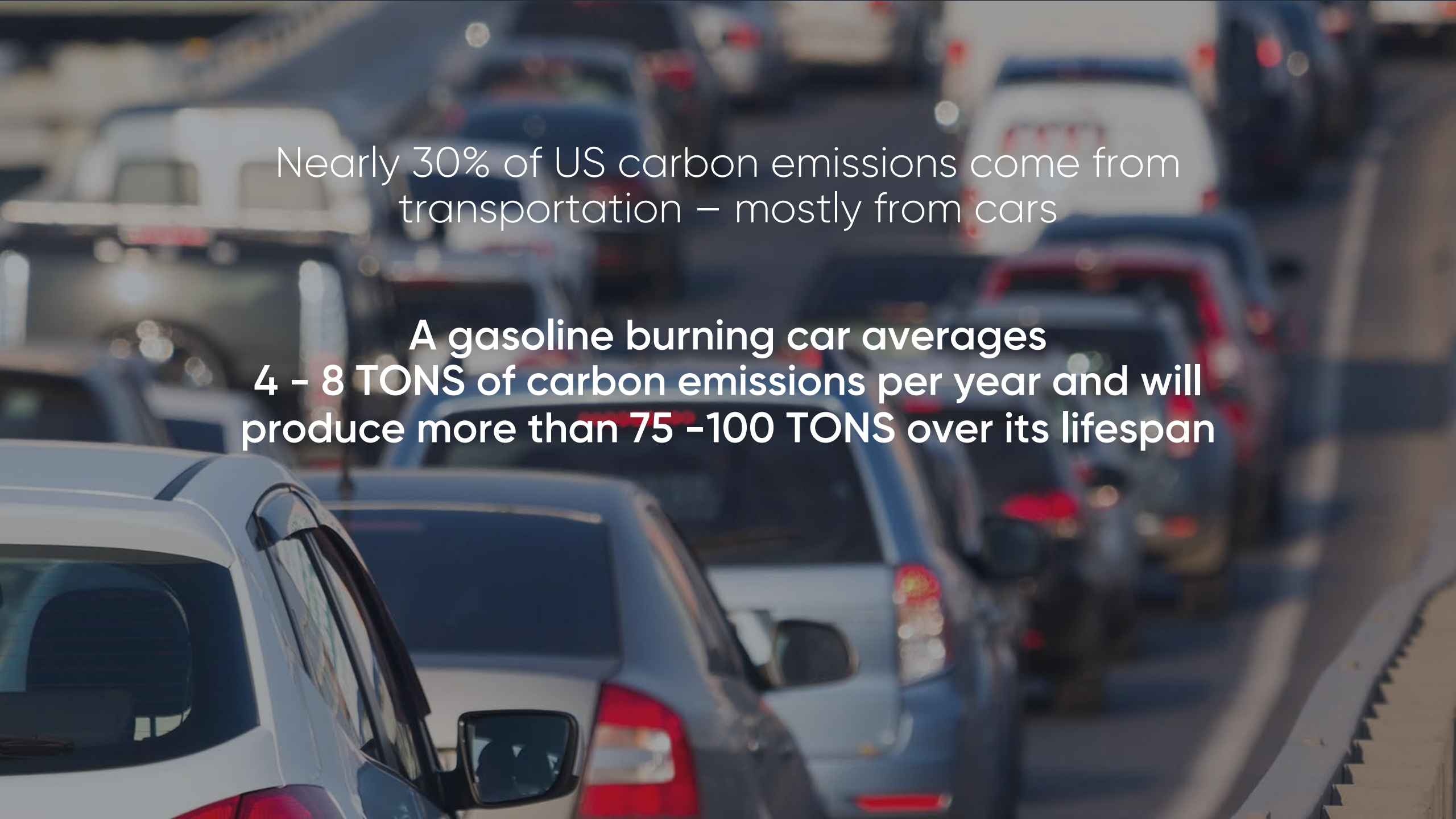
Cut the Pipe!

Save $120 per year

Avoid methane leaks in your house and yard

Help scale back the gas system

3. Electrify your ride

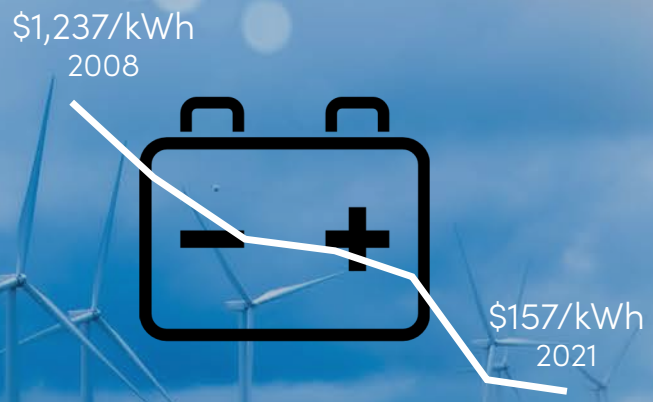


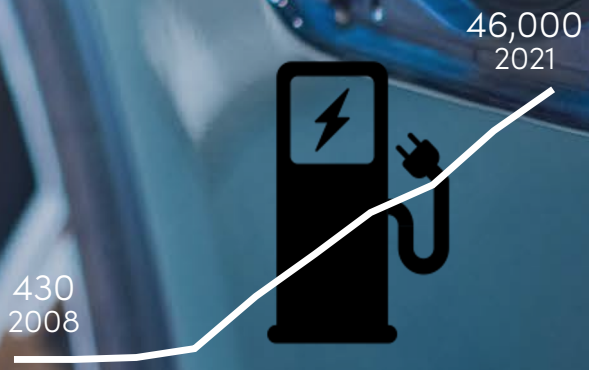
Nearly 30% of US carbon emissions come from transportation – mostly from cars

A gasoline burning car averages 4 - 8 TONS of carbon emissions per year and will produce more than 75 -100 TONS over its lifespan

Filling up.....

An EV charged with clean renewable energy will produce ZERO EMISSIONS.

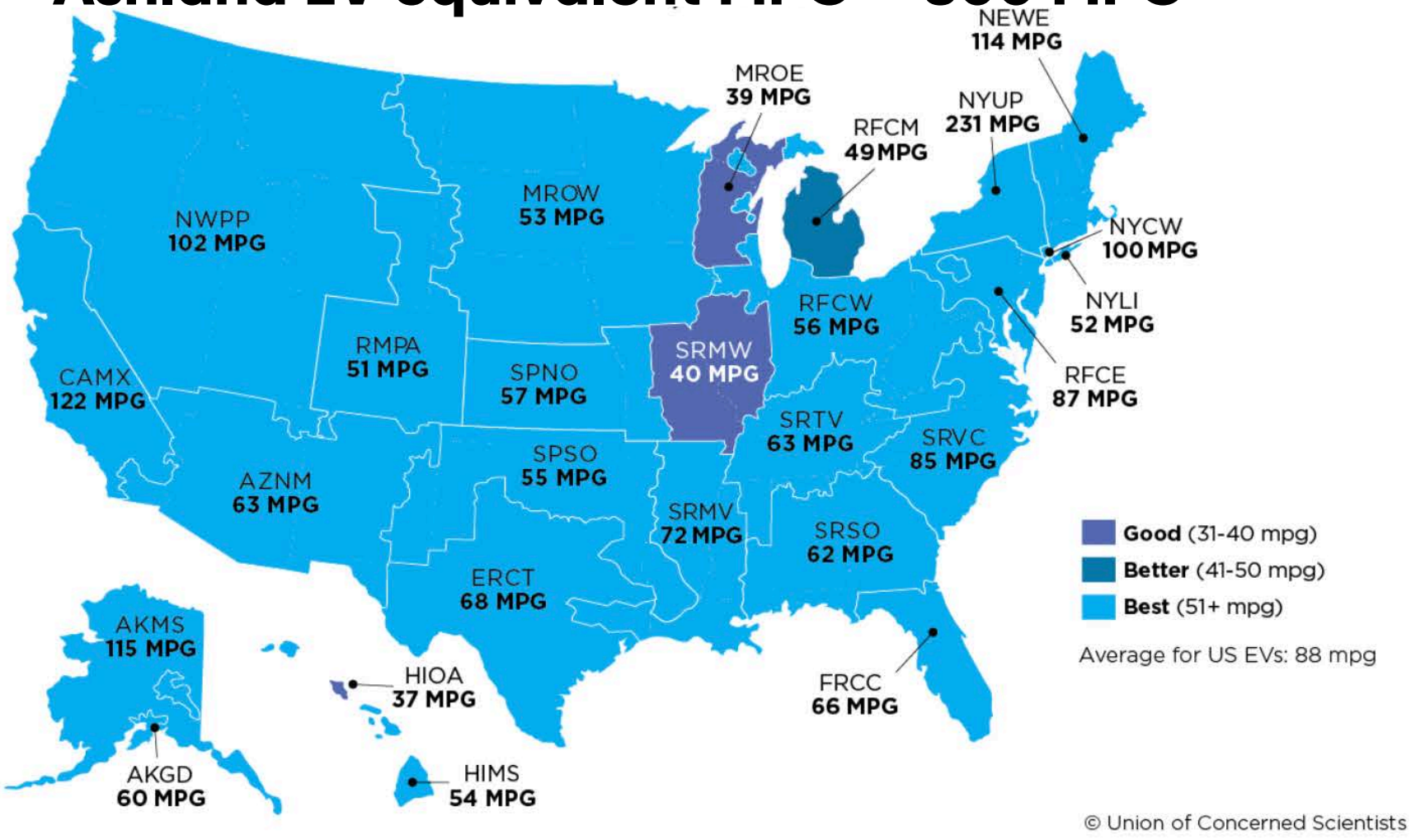




US Department of Energy, Electric Vehicle Battery Pack Cost, October 2021, US Public Charging sites, Department of Energy, 2021 - 150,000 Gasoline fueling stations

US Average EV equivalent MPG – 88 MPG

Ashland EV equivalent MPG – 800 MPG



from Union of Concerned Scientists 2020

EV's are more energy efficient – more miles for the money

from manufacturers mileage estimates, gas and electricity costs in Oregon 2021, Gasoline $4.50/gal Electricity $0.14/KWh

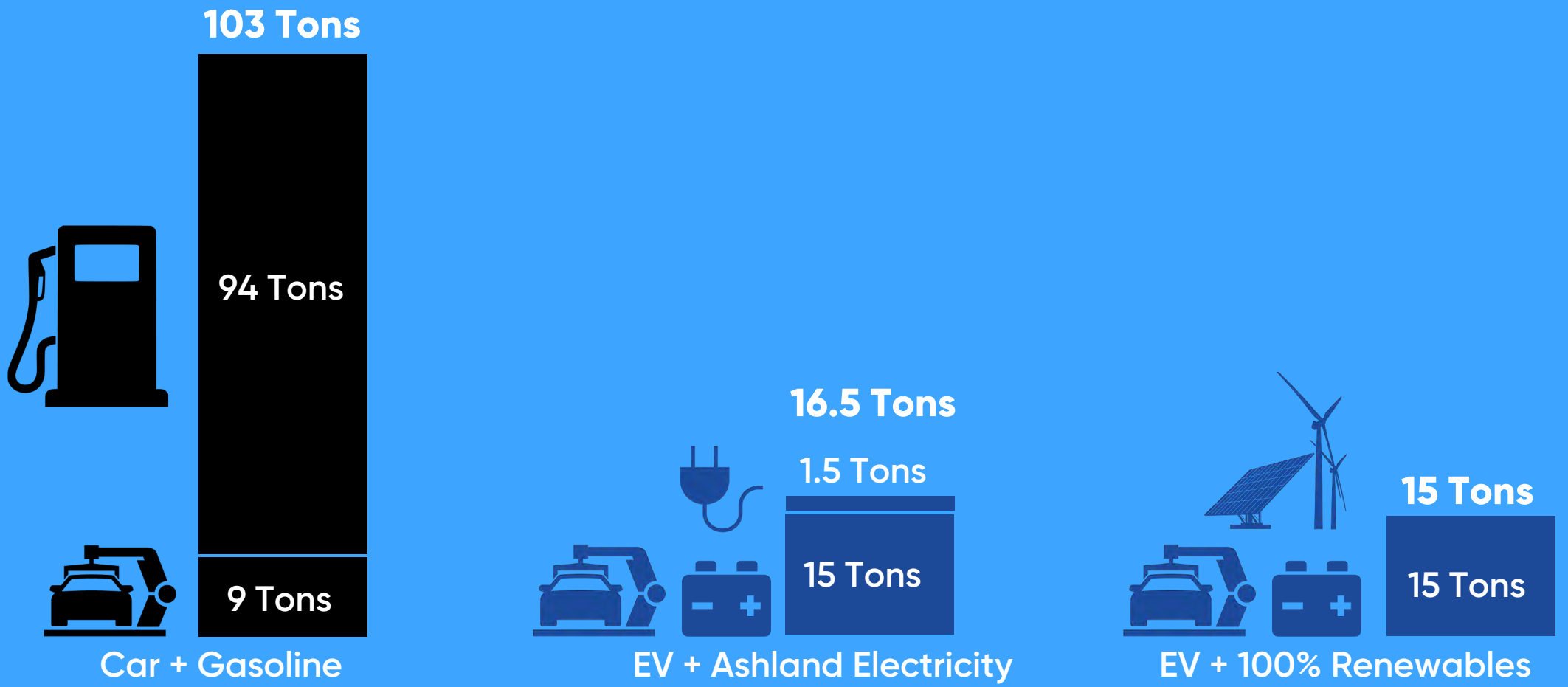
EV's are cheaper than you think!

	Kona	Kona EV
List Price	$22,300	$37,390
Fed Tax Credit		-$7,500
Oregon Tax Credit		-$2,500
	$22,300	**$27,390**
5 yr fuel cost	$9,000	$1,974
5 yr maintenance	$2,000	$880
Total 5 yr Cost	**$33,300**	**$30,244**

from manufacturers website, mileage estimates, gas and electricity costs in Oregon 2022, and Consumer Reports 5 year maintenance cost estimates

What about the manufacturing the batteries?

A full sized EV will produce **1/6TH** the lifecycle emissions of a gas car



from Union of Concerned Scientists for full sized cars, BEV with range of 265 miles

Shouldn’t I hang on to my current car as long as possible?

Replace your gas burner as soon as you can

1. Your car emits almost as much carbon in one year of operation as it took to make it

2. You could spend your car/gas money (over $3,000/yr) on the solution instead of paying for climate change

3. People like you can accelerate EV adoption

Year 1

Year 15

Year 1

Year 15

Year 1

Year 15

Year 1

Year 15







Cheaper than you think
Better performance
More fun to drive
Never go to a gas station again

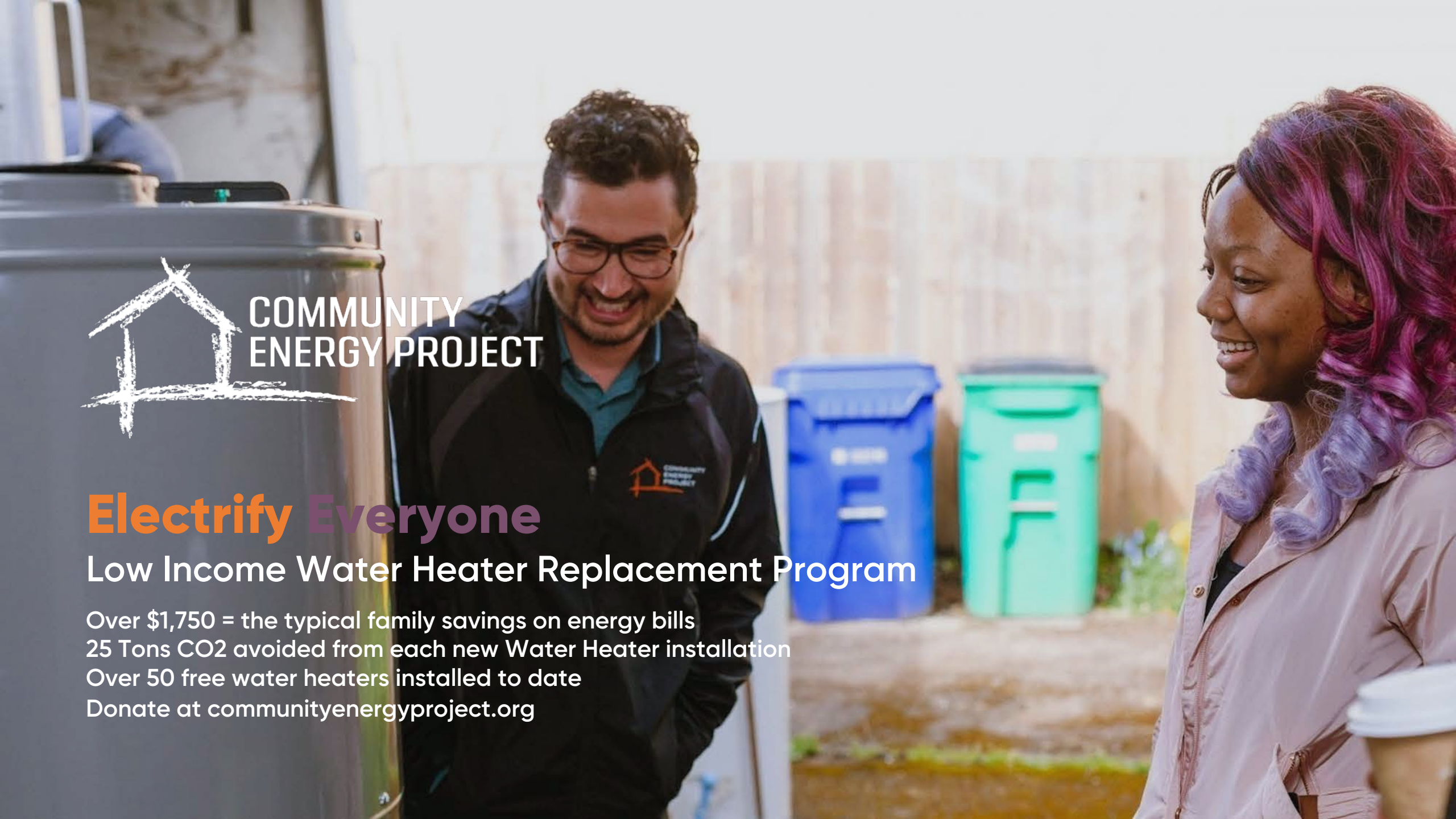
4. Electrify Everyone

People of color have much higher exposure to pollution and fine particulates from:

Highways
Chemical Plants
Refineries
Construction
Agriculture

These families also pay a much higher percentage of their income for energy

Photo: Emily Rose Bennett for The New York Times



Electrify Everyone

Low Income Water Heater Replacement Program

Over $1,750 = the typical family savings on energy bills
25 Tons CO2 avoided from each new Water Heater installation
Over 50 free water heaters installed to date
Donate at communityenergyproject.org

4 Largest sources of carbon emissions in your life

Electricity
0.2-0.4 Tons

Car
4–8 Tons

Furnace
4–8 Tons

Water Heater
1–3 Tons

electrify now

empowering everyone to create our clean energy future

An abundant future with ready access to clean, sustainable energy for all of us is now entirely possible to achieve. We can help create this future through the energy choices we make. By choosing to **electrify!** we can help prevent the worst effects of climate change, save money on energy costs, reduce air and water pollution, improve our daily lives, and accelerate the transition to a clean energy future.

Please use this website to learn more about why electrification is such a potent and essential action, and how you can take steps in your own life to build a better future for everyone.

Join the **Electrify Everything** climate solution

- Burning fossil fuels for energy is the primary cause of the climate crisis.

- Collectively, our monthly bills for electricity, natural gas and gasoline add up to BILLIONS of dollars every year spent on fossil fuels - we are funding the problem.

- But now, we can all stop burning fossil fuels and shift our energy dollars to fund the solution; **clean electricity powered by renewable energy, and high performance electric products for heating, cooking and transportation.**

electrify now

empowering everyone to create
our clean energy future

1. Clean up your electric supply
2. Electrify your home
3. Electrify your ride
4. Electrify Everyone

Thank You!

electrifynow.net