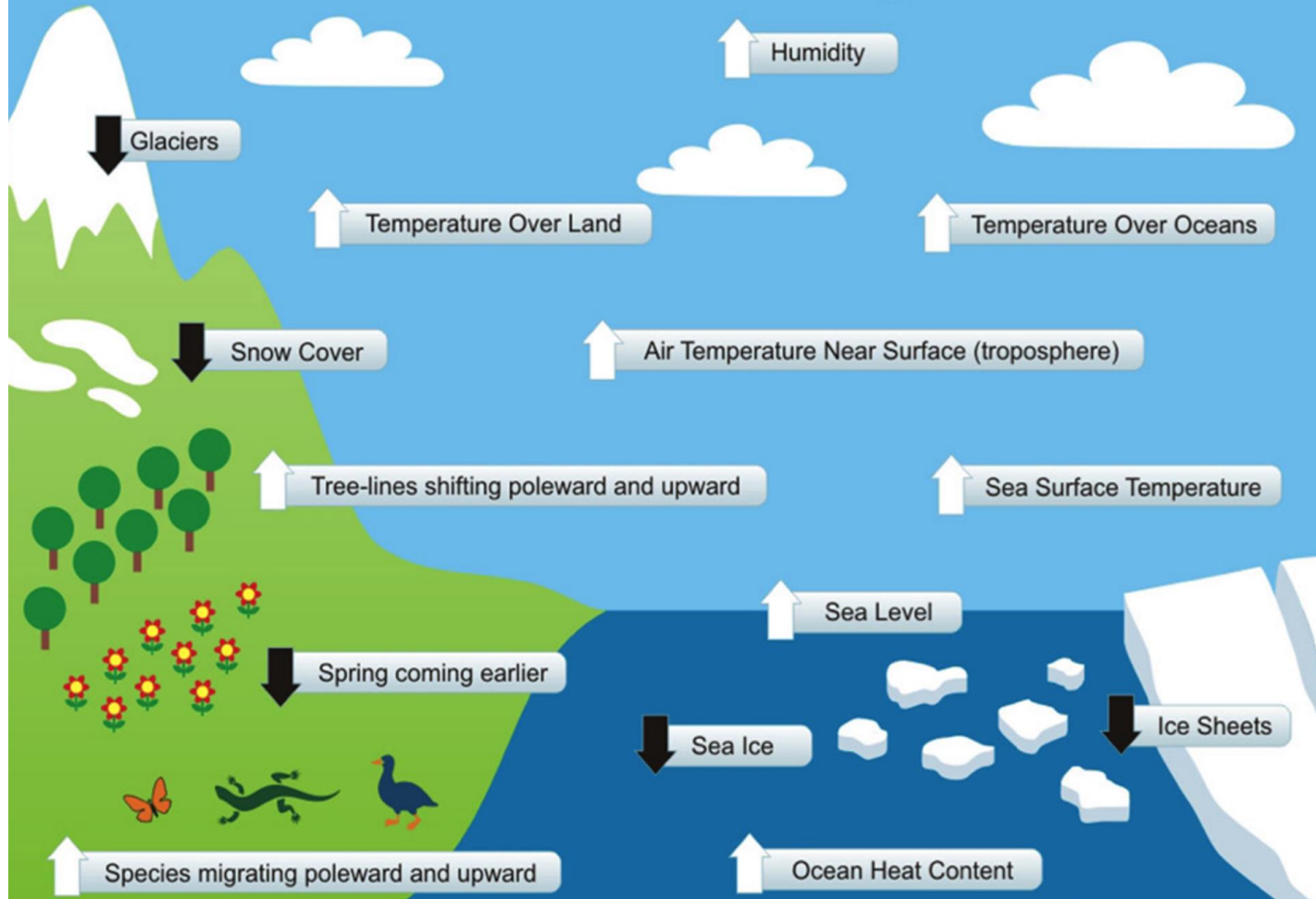


Why Do We Do EV Expos?



Indicators of a Warming World



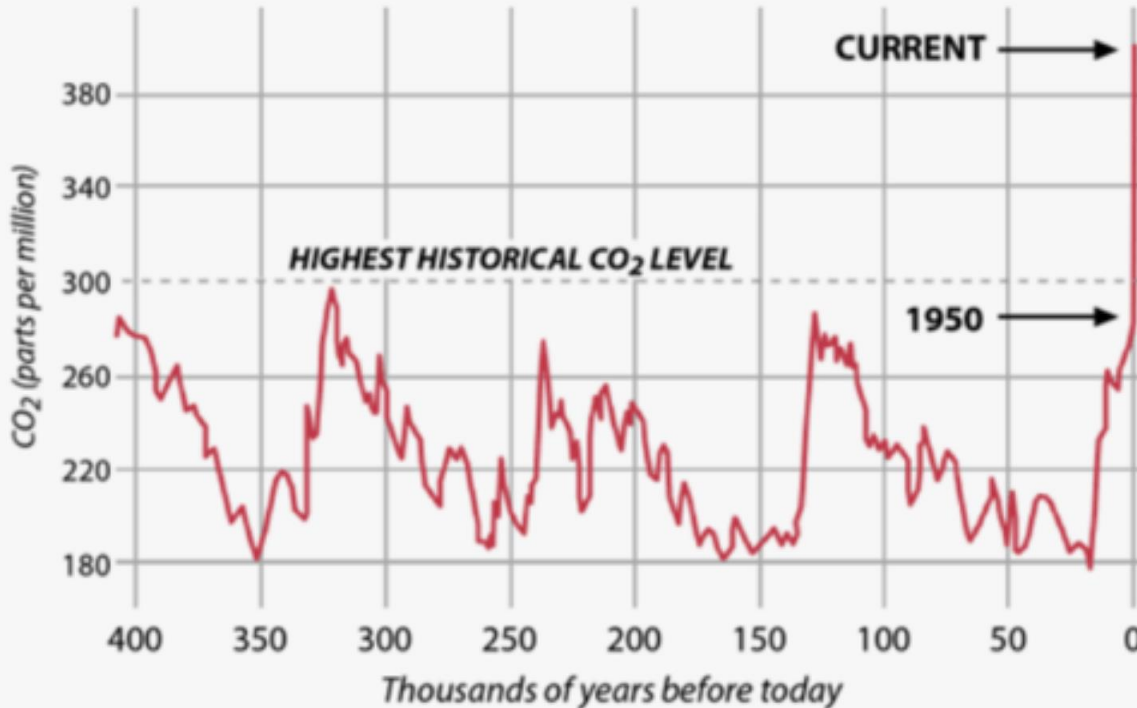
Have you seen any of these indicators of global warming lately?

CO₂ Levels Are Off the Charts

Carbon dioxide concentrations in the atmosphere have risen and fallen over time, but the spike over the past 100 years is unprecedented.

ATMOSPHERIC CARBON DIOXIDE CONCENTRATIONS

Parts permillion; data reconstructed from ice cores

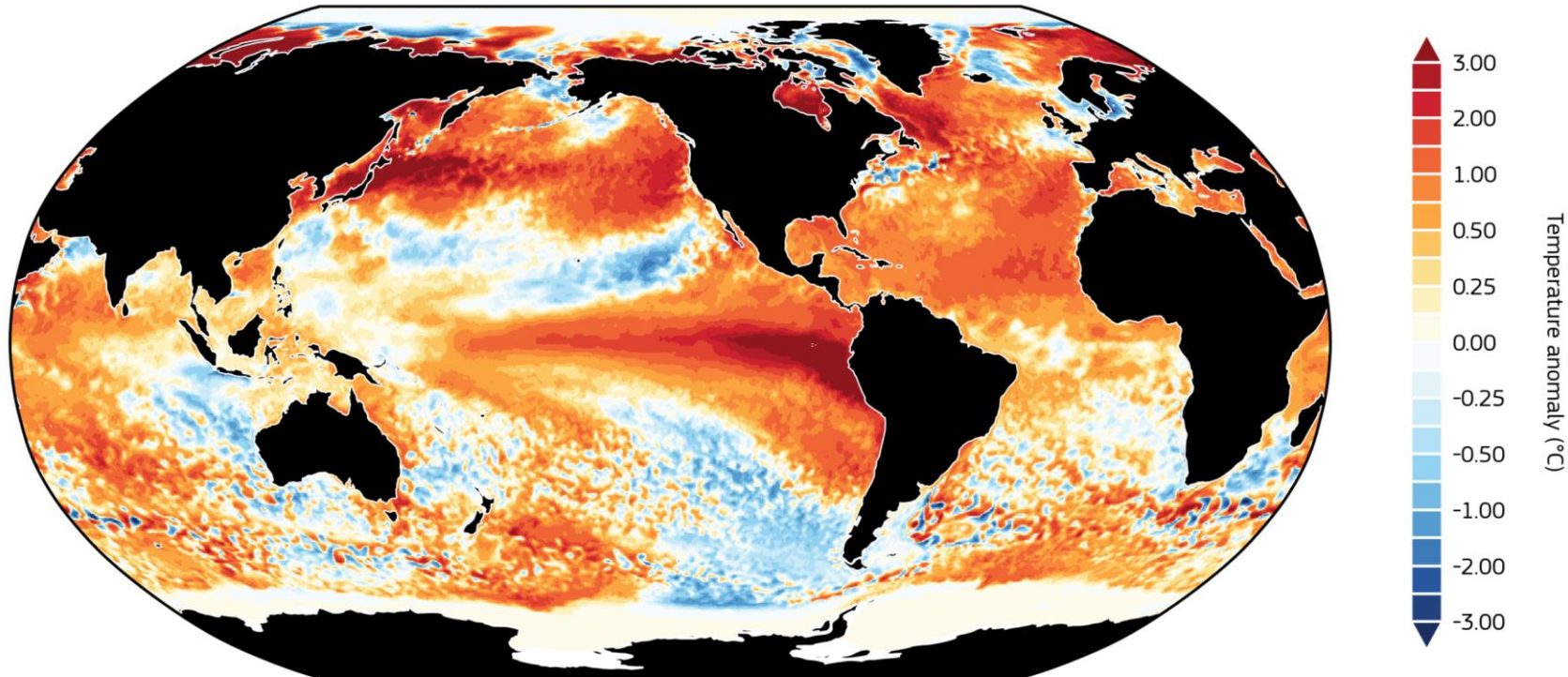


What's happened in past 70 years to send our CO₂e levels through the roof?

Def'n: CO₂e refers to all Greenhouse Gases

SEA SURFACE TEMPERATURE ANOMALY • AUGUST 2023

Reference period: 1991–2020 • Data: ERA5 • Credit C3S/ECMWF



PROGRAMME OF
THE EUROPEAN UNION



IMPLEMENTED BY
ECMWF



Causes of Global Warming

Burning Fossil Fuels (*esp. Petroleum*)

Destroying ecosystems and the ability of the land, forests, water and wetlands to regulate carbon and water cycles...

We are tearing up the “web of life”

Causes of Global Warming

Burning Fossil Fuels (*esp. Petroleum*)

Destroying ecosystems and the ability of the land, forests, water and wetlands to regulate carbon and water cycles...

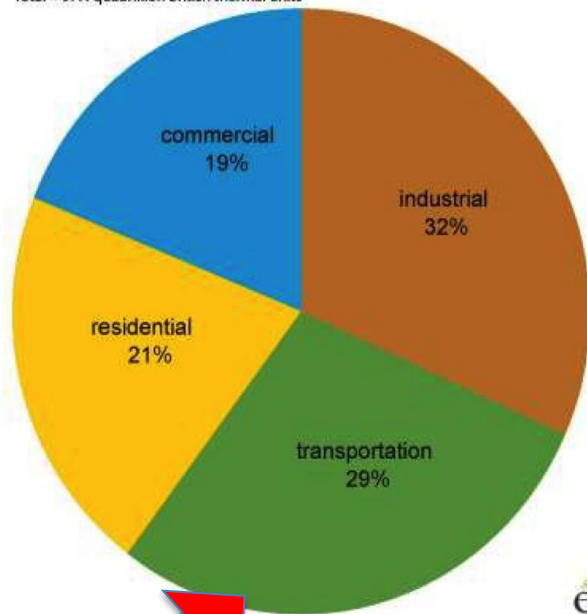
We are tearing up the “web of life”

**Refining and
Burning
Petroleum is
36-40% of Total
US Energy
Consumption...**

**It's the Biggest
Single Source of
Carbon
Emissions!!!**

**Share of total U.S. energy consumed by end-use sector
in the United States, 2016**

Total = 97.4 quadrillion British thermal units

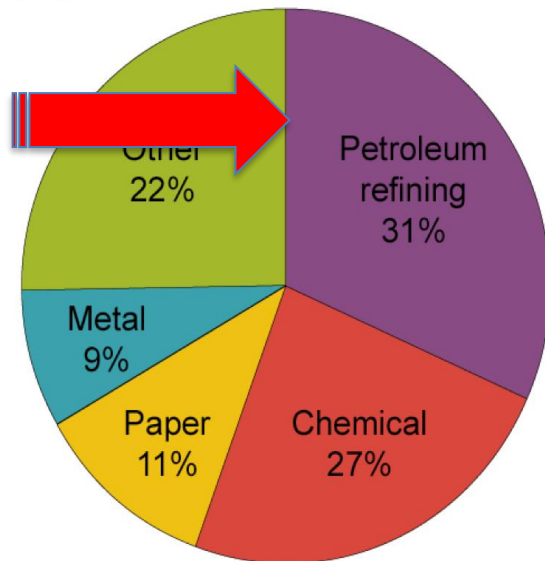


Note: Sum of individual percentages may not equal 100 because of independent rounding.

Source: U.S. Energy Information Administration, *Monthly Energy Review*, Table 2.1, April 2017, p. 12.



**Energy use by type of industry,
2010¹**

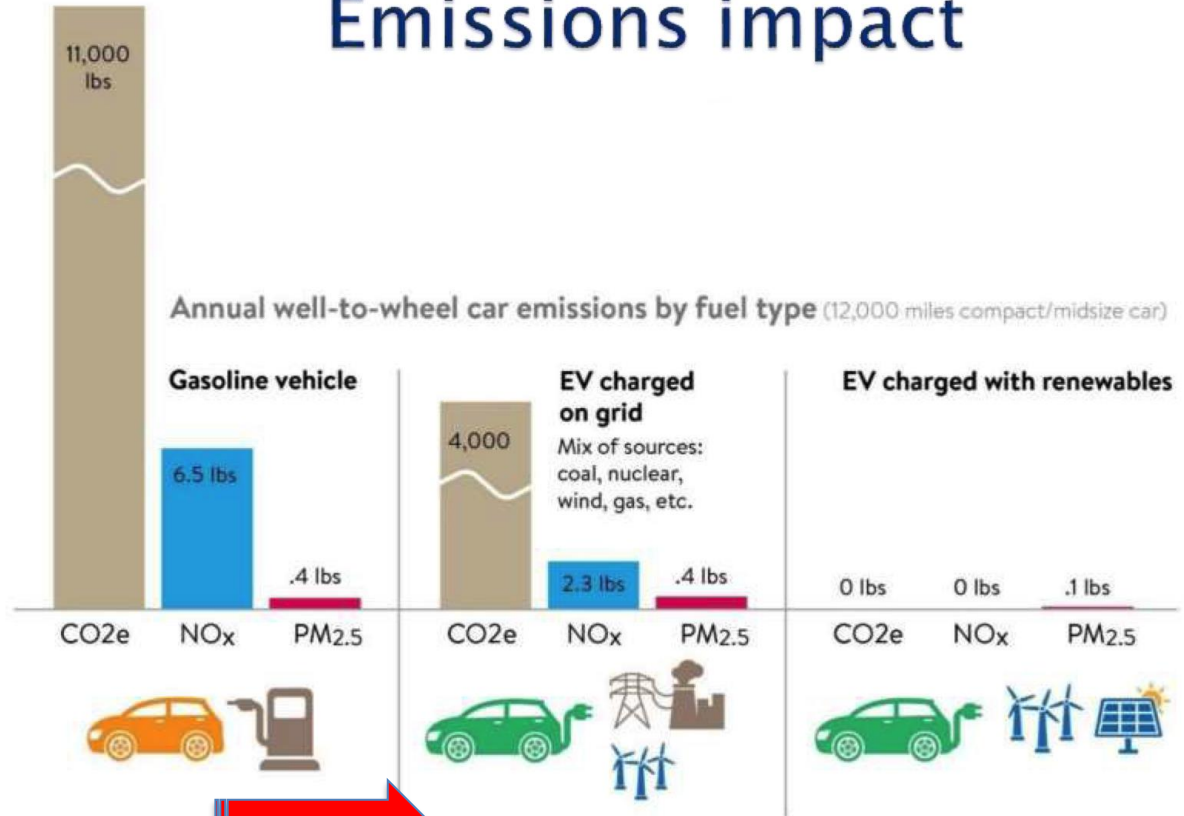


Source: U.S. Energy Information Administration, *Manufacturing Energy Consumption Survey 2010*, Table 1.2 (March 2013)

¹Includes all use of energy and fuels; excludes shipments of energy sources produced onsite.

Switching to EVs charged by conventional grid (circa 2016) are almost 2/3rd less polluting than gas-powered cars!

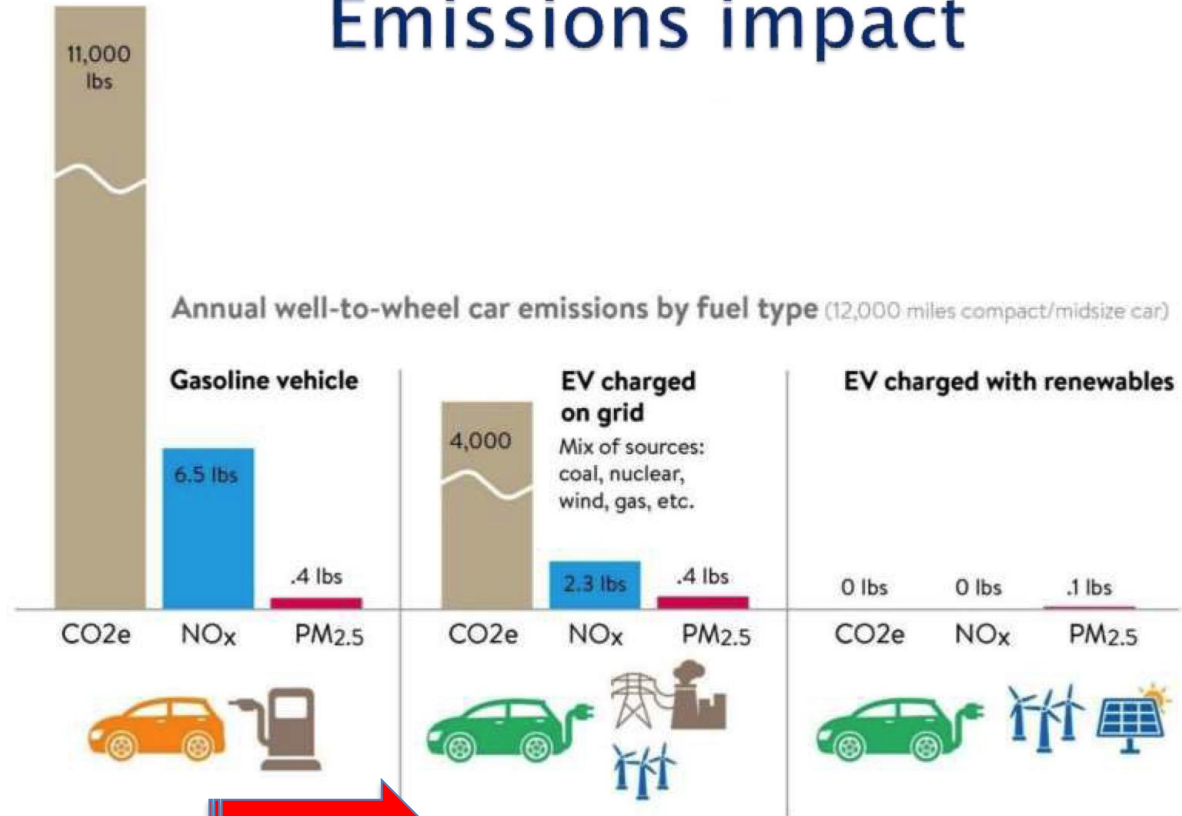
Emissions impact



Source: MOVES2014a and 2014 EPA National Emissions Inventory Database

EVs charged by grid produce only 1/3rd as much CO₂e, and NO_x (smog) ...Causes of global warming and heart/respiratory diseases

Emissions impact

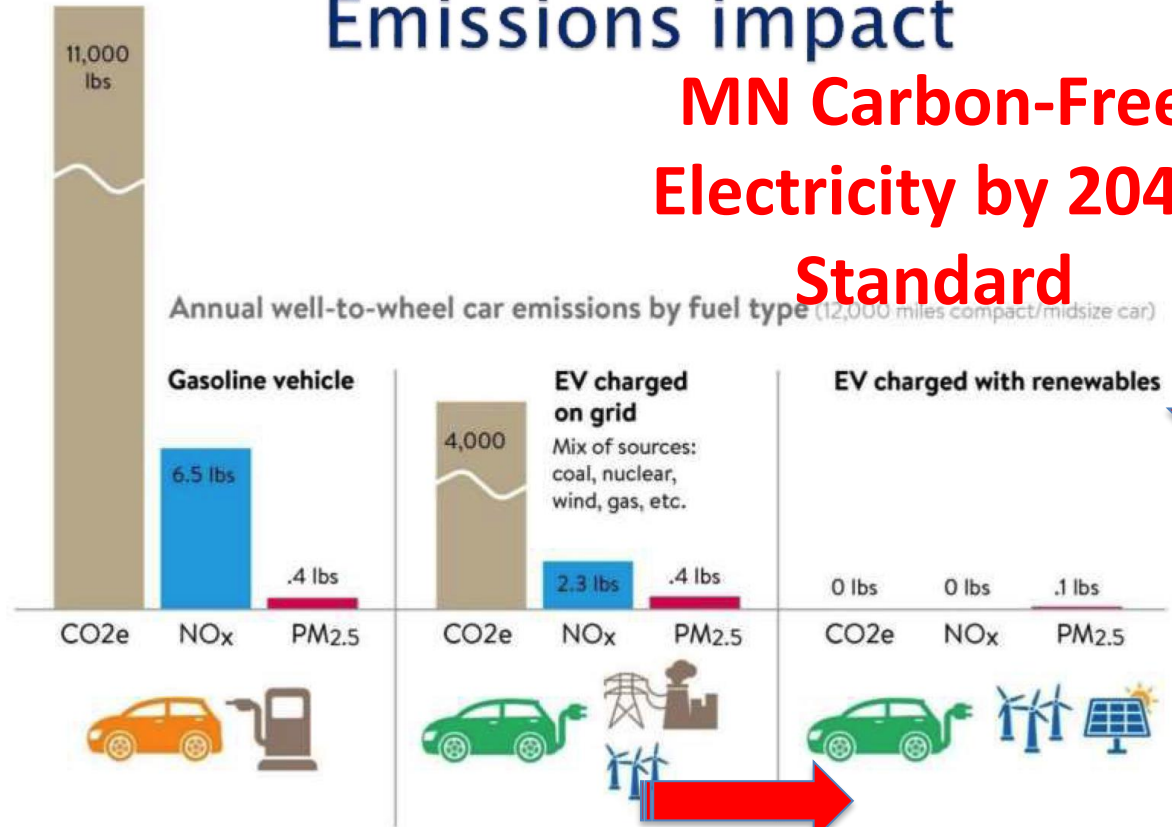


Source: MOVES2014a and 2014 EPA National Emissions Inventory Database

EVs charged by 100% carbon-free electrical grid are totally efficient in eliminating all CO₂e, NO_x, and almost all PM_{2.5}

Emissions impact

MN Carbon-Free Electricity by 2040 Standard

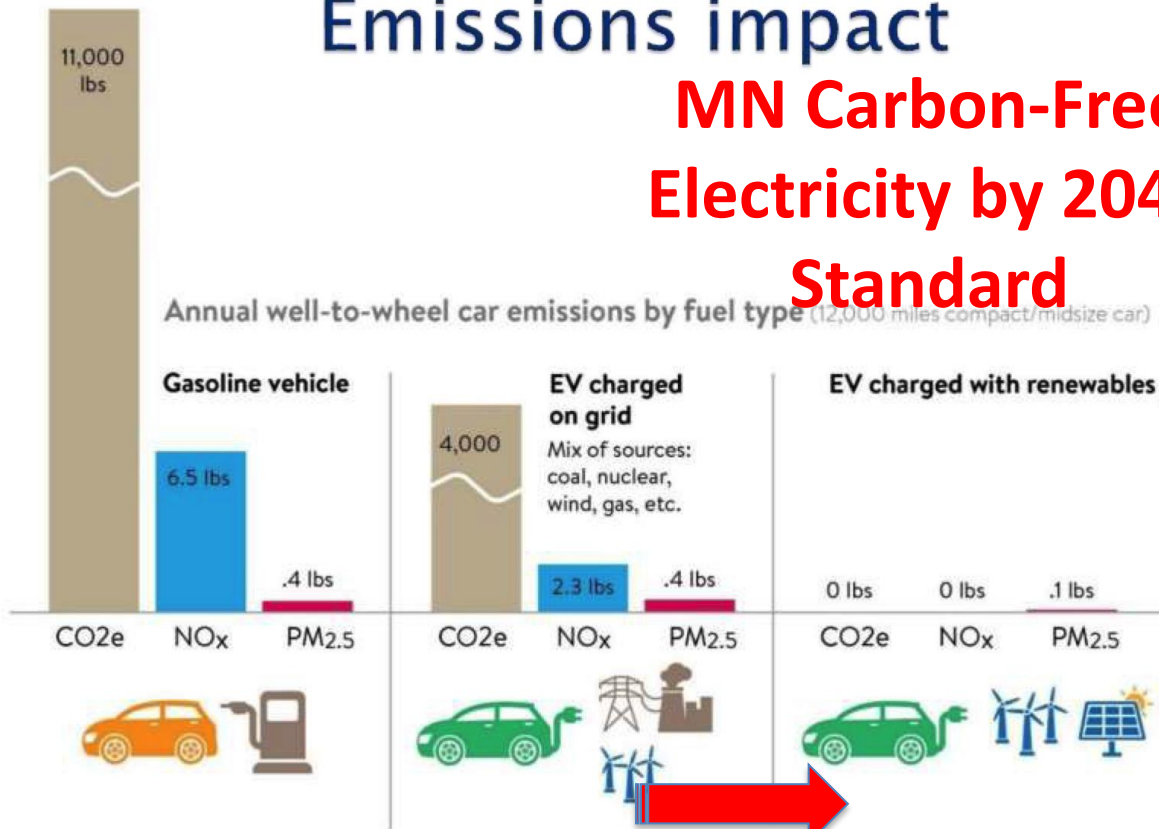


Source: MOVES2014a and 2014 EPA National Emissions Inventory Database

Bottom Line:
We Must All
Stop Burning
Gasoline Now
and over the
Next 20 Years!

Emissions impact

MN Carbon-Free
Electricity by 2040
Standard





CARS

Tesla Model 3 & Model Y Now Cost Less Than Gasoline-Powered Equivalents

It's a miracle. The Tesla Model 3 and Model Y now cost less than the average new car in America. Let the EV revolution begin in earnest!



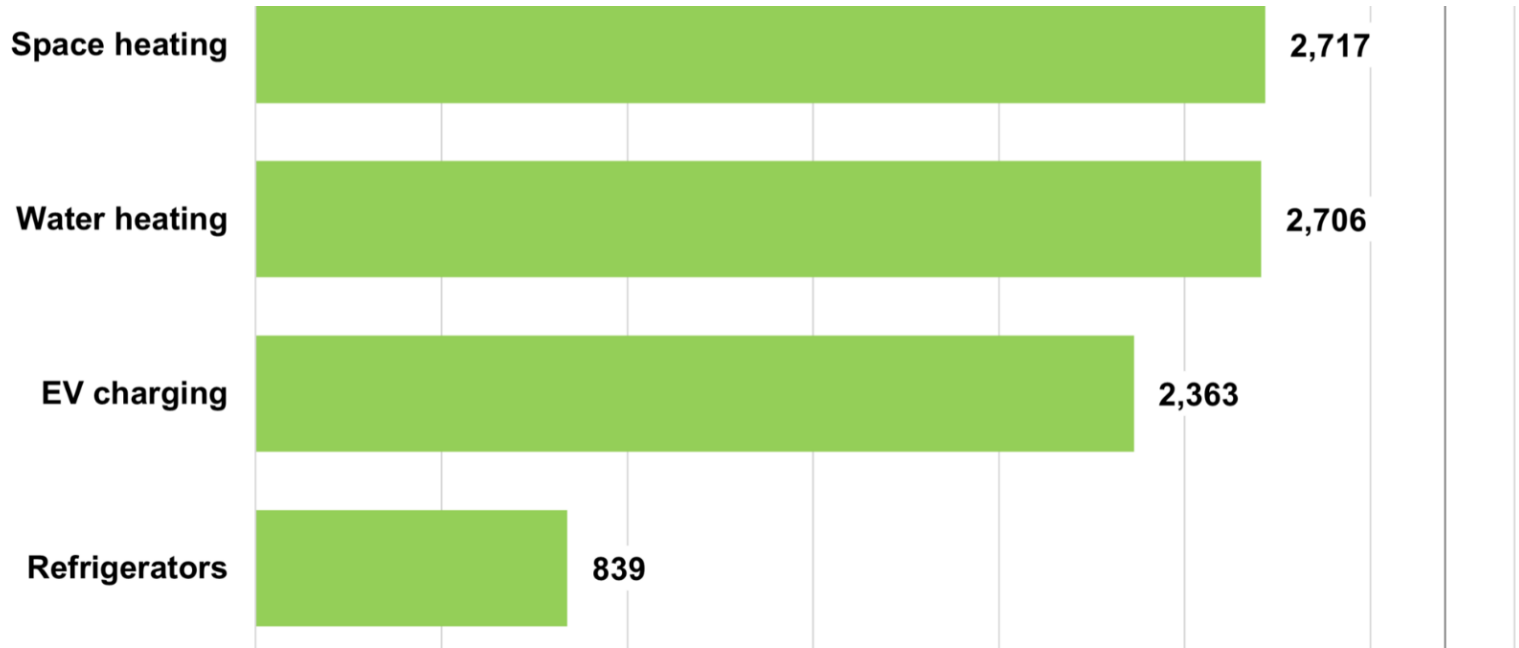
By Steve Hanley Published 14 hours ago



24 Comments

EVs are Cheaper to Buy than Gasmobiles

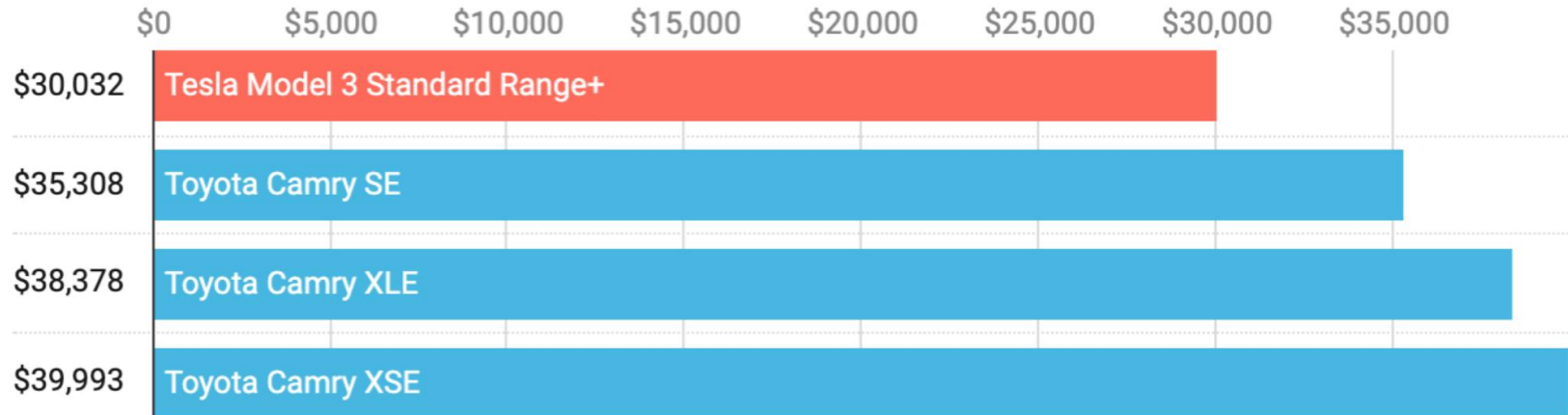
Bottom Line: EVs are Cheaper to Fuel



Charging Costs for EVs Range from \$0.50 to \$0.90 per gallon equivalent

Bottom Line: EVs are Cheaper to Operate

Analysis: cleantechnica.com/2019/09/27/tesla-model-3-vs-toyota-camry-5-year-cost-to-own/



Assumptions: 15,000 miles/year, \$3.10/gallon for gasoline, \$0.13/kWh for electricity, \$1,875 tax credit for Model 3, \$5,000 down payment and 4.5% interest on 5-year loan, Kelley Blue Book estimates for 5-year resale value.

EVs Mean Not Supporting Petro States

“Over 73% of all energy consumed in Minnesota comes from fossil fuels used for heating, industrial processes, transportation, and electricity generation. More than half of imported electricity is generated with fossil fuels.”

Let's quit supporting Texas, Oklahoma, No Dakota, Wyoming, Russia, Saudi Arabia, Alberta Tar Sands, Koch, Enbridge....

Why Do We Do EV Expos?





**To Stop Blowing CREATION
Out Our Tailpipes !**

Why Do We Do EV Expos?



**Rapidly Move to 100% Clean Transportation
Fueled by 100% Clean Energy**

EV Expos at Oak Grove



EV EXPO 2023



Saturday, Sept. 23rd
11:00 am – 3:00 pm

**Oak Grove
Presbyterian Church**

2200 W Old Shakopee Rd, Bloomington 55431
952.888.4621

*This event is free and open to the public.
Information will include federal Inflation
Reduction Act (IRA), and state tax credits
& rebates.*

[HTTPS://BIT.LY/3DUXE3S](https://bit.ly/3DUXE3S)

**ELECTRIC
VEHICLES
IMPROVE
OUR LIVES!**

TEST DRIVES

*of the best-selling
EV models, provided
by dealers and the
American Lung
Association*

TALK TO EV OWNERS

*about their driving
experiences*

PLUS!

E-Bikes
E-Mowers & Yard Tools
Electric School Bus
Electric Mass Transit
Charging for Long-Distance
Travel
Tax Credits & Rebates
Climate Benefits

FOOD & FUN FOR KIDS

For more information



SCAN ME!

Owners Talk About Their EVs



Owners Talk About Their EVs





**In 2023 we had
22 EV Owners
and their
Vehicles...**

**Some of them
have been with
Expo since 2018**



Tesla Model Y
Tesla Model 3
Mits Outlander PHEV
VW ID.4
Ford Mustang Mach E
Nissan Leaf
Nissan Ariya
Chevy Bolt EUV
Toyota RAV4 PHEV
Pacifica PHEV







EV Test Drives with Dealers





**2023 – We offered 99 EV Test Drives by 6 Dealers
Over 3 mile route of streets and freeway
Sponsored by American Lung Association-Minnesota**



Test Drive Route

From Oak Grove Parking Lot

Turn right (North) on Penn Ave

Turn right (East) on 90th St

Turn right to 35W South onramp

Take 98th St exit

Turn right (West) on 98th St

Veer left to turn on Old Shakopee Rd

Turn right (North) on Penn Ave

Turn into 2nd Oak Grove entrance



















Test Drives of:
Tesla Model Y
KIA Niro
Nissan Ariya
Polestar 2
BMW i5
Subaru Solterra





Manufacturer								Range			Charging speed (miles/hr)			Performance					
Make	Model	Photo	Seating	EV Type	FWD/ RWD/ AWD	Base MSRP	Federal tax credit	Battery size (kWh)	Electric Range (miles)	Total Range (miles)	Charging rates (kW) L2/DCFC	Level 1 120V	Level 2 240V	DCFC 400+V	MPGe/ MPG	Top Spd (mph)	0-60 mph (sec)	Towing capacity (lbs)	Safety Ratings by IIHS
Audi	Q4 e-tron		5	BEV	AWD	\$49,800	FuelEconomy.gov	82	241	241	11/125	3	31	282	95	112	5.8	2600	Top Safety Pick +
Audi	Q4 Sportback e-tron		5	BEV	AWD	\$58,200	FuelEconomy.gov	82	241	241	11/125	3	31	282	95	112	5.8	2600	Top Safety Pick +
Audi	Q8 e-tron (S)		5	BEV	AWD	\$74,400	FuelEconomy.gov	106	285	285	9.6-19.2/17C	3	44	315	78	124-130	4.3-5.6	4000	Top Safety Pick +
Audi	Q8 e-tron Sportback (S)		5	BEV	AWD	\$77,800	FuelEconomy.gov	106	300	300	9.6-19.2/17C	3	44	311	77	124-131	4.3-5.4	4000	Top Safety Pick +
Audi	e-tron GT		5	BEV	AWD	\$106,500	FuelEconomy.gov	93	238	238	9.6/270	3	23	292	82	155	3.1-3.9	0	Not Rated
Audi	Q5 TFSI e		5	PHEV	AWD	\$57,400	FuelEconomy.gov	17.9	20	390	7.4	2	14	N/A	61/26	130	5	4400	Top Safety Pick +
BMW	i4		5	BEV	RWD/ AWD	\$52,200	FuelEconomy.gov	81	227-301	227-301	11/195	4	33	462.908	80-109	140	3.7-5.5	0	Not Rated
BMW	i5		5	BEV	RWD/ AWD	\$66,800	FuelEconomy.gov	81	240-295	240-295	11/195	4	33	462.908	85-105	120-130	3.7-5.7	0	Not Rated
BMW	i7		5	BEV	AWD	\$124,200	FuelEconomy.gov	106	318	318	11/195	4	33	411.9881	89	130	4.5	0	Not Rated
BMW	iX		5	BEV	AWD	\$87,100	FuelEconomy.gov	112	315-324	315-324	11/195	3	28	393.4718	83-86	124	3.6-4.4	0	Not Rated
BMW	330e		5	PHEV	WD/ AWD	\$45,600	FuelEconomy.gov	12	23	320	3.7	3	8	N/A	75/28	130-142	5.6	0	Good
BMW	750 xDrive		5	PHEV	AWD	\$107,000	FuelEconomy.gov	12	16	290	3.7	2	6	N/A	56/22	127	4.6	0	Top Safety Pick +
BMW	X5 xDrive50e		5	PHEV	AWD	\$72,500	FuelEconomy.gov	24	39	440	7.4	2	11	N/A	58/20	130	4.6	0	Top Safety Pick
BMW	The XM		5	PHEV	AWD	\$159,000	FuelEconomy.gov	25.7	31	300	7.4	2	11	N/A	73/14	168	3.7	0	Top Safety Pick

E-Lawn Tools



Mark has been with Expo since 2018.

Reports that in 2022, 85% of his sales were for electric lawn tools

E-Lawn Tools





E-Bikes



**Sorry We did not
have an E-Bike
Vendor in 2023**

Electric School Bus from Eastern Carver County



Electric School Bus from Eastern Carver County



Electric School Bus from Eastern Carver County



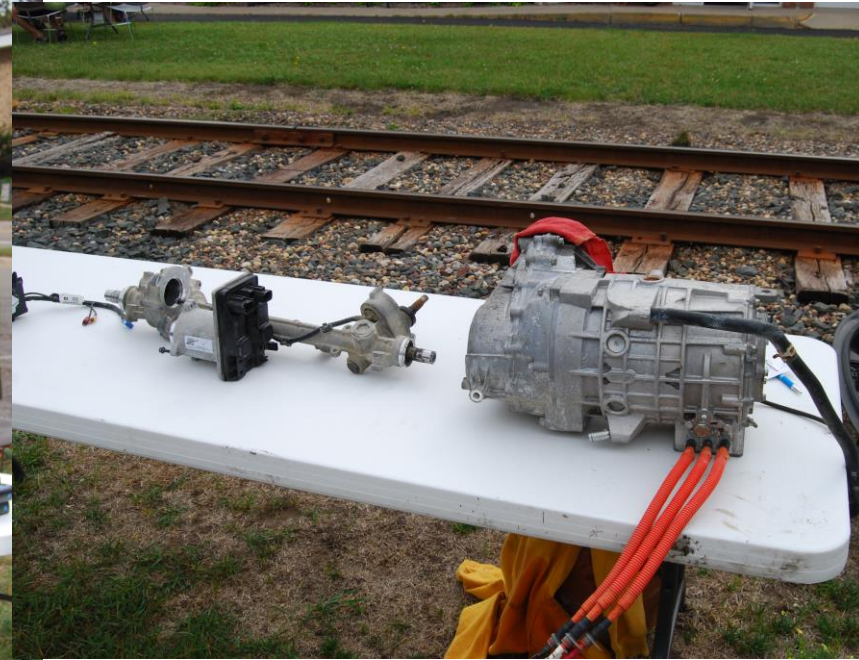
Two physicians described:

- Climate Benefits
- Health Benefits for Students and Drivers
- Better Learning Outcomes
- Cost Benefits

Electric School Bus from Eastern Carver County



Pdon and Daryl Show the Guts of How EVs Work





Talks About EV Charging

85-90% of EV Charging is Done at Home



Level 1

5 miles of charge per
hour of charging
120 Volt AC
Home Charging



Level 2

20 miles of charge per hour
of charging
240 Volt AC
Home/Commercial
Charging



DC Fast Chargers
Charges battery
fully in less than
20-45 minutes
Commercial
Charging Stations

Supercharger Networks for Long Distance Travel



A Ford Mustang Mach-E at a Tesla charging station.

CARS

**How GM & Ford Joining The
Tesla Charging Network
Accelerate Electric Vehicle
Adoption**

Inflation Reduction Act

Tax Credits and Rebates for EVs and Chargers



Electric Vehicle Credits Updated 7/23/2023

Income Limits for Purchase	Limit (New Car)	Limit (Used Car)
<input type="checkbox"/> Married filing jointly	\$300,000	\$150,000
<input type="checkbox"/> Head of Household	\$225,000	\$112,500
<input type="checkbox"/> Single/Married Filing Separately	\$150,000	\$75,000

EV Purchase (New): Apr 18, 2023 and after	Rebate
<input type="checkbox"/> Vehicle Meets Critical Minerals Requirement	\$3750
<input type="checkbox"/> Vehicle Meets Battery Components Requirement	\$3750
MAXIMUM PERMITTED TOTAL CREDIT per household:	\$7500
Price Caps	SUV/Truck: \$80,000 Car: \$55,000

EV Purchase (Used)	Rebate
<input type="checkbox"/> Eligible FCV or plug-in EV	30% of sales price, up to \$4000
Qualifications:	
<ul style="list-style-type: none"> - Purchase price under \$25,000 - Can only claim once every three years - Car must be 2 years older than calendar year of purchase date - Vehicle must be purchased from dealer 	

EV Lease	Rebate
<input type="checkbox"/> Eligible FCV or plug-in EV	\$7500 for vehicles under 14000 GVWR, part of lease
Note:	
<ul style="list-style-type: none"> - Dealers can use this to reduce the cost of leases to customers – credit is built into the price - May allow greater flexibility for EV choices - Watch the fine print – lease buyout may be canceled for some EVs 	Rebate is part of the lease agreement, so no separate tax credit available at tax filing

- Additional Info:
- Updated list of Current Eligible Vehicles: <https://fueleconomy.gov>
 - Beginning in 2024, taxpayers will have the option to transfer the credit to the dealer at the point of sale to directly lower the price of the vehicle by the corresponding credit amount
 - Rules for EVs purchased between 1/1/2023 and 4/31/2023 can be found at:
 - o <https://www.irs.gov/credits-deductions/credits-for-new-clean-vehicles-purchased-in-2023-or-after>
 - The EV must undergo final assembly in North America to qualify for the new purchase credit.

Car Make and Model	Year	Vehicle Type	Tax Credit Amount
BMW			
X5 xDrive50e	2024.	PHEV.	\$3,750.
Cadillac			
Lyriq	2003–2024.	EV.	\$7,500.
Chevrolet			
Bolt Bolt EUV	2022–2023.	EV.	\$7,500.
Blazer	2024.	EV.	\$7,500.
Equinox	2024.	EV.	\$7,500.
Silverado	2024.	EV.	\$7,500.
Chrysler			
Pacifica	2022–2023.	PHEV.	\$7,500.
Ford			
Escape	2022–2023.	PHEV.	\$3,750.
E-Transit	2022–2023.	EV.	\$3,750.
F-150 Lightning (standard and extended range battery)	2022–2023.	EV.	\$7,500.
Mustang Mach-E (standard and extended range battery)	2022–2023.	EV.	\$3,750.
Jeep			
Grand Cherokee PHEV 4xe	2022–2023.	PHEV.	\$3,750.
Wrangler PHEV 4xe	2022–2023.	PHEV.	\$3,750.
Lincoln			
Aviator Grand Touring	2022–2023.	PHEV.	\$7,500.
Corsair Grand Touring	2022–2023.	PHEV.	\$3,750.
Rivian			
R1S R1T	2023.	EV.	\$3,750.
Tesla			
Model 3 Standard Range RWD	2022–2023.	EV.	\$7,500.
Model 3 Performance	2022–2023.	EV.	\$7,500.
Model Y Performance Model Y AWD Model Y Long Range AWD	2022–2023.	EV.	\$7,500.
Model 3 Long Range AWD	2023.	EV.	\$7,500.
Volkswagen			
ID.4 Pro. ID.4 Pro S ID.4 Pro S Plus			
ID.4 AWD Pro ID.4 AWD Pro S ID.4 AWD Pro S Plus	2023.	EV.	\$7,500.
ID.4 S ID.4 Standard			

Tabling



Tabling



Tabling



Food



KidWind for the Kids



KidWind for the Kids







QR Tour of Oak Grove's Green Projects

SCAN THE QR CODES
FOR INFORMATION ON
EACH IMPROVEMENT

EVs & EV CHARGERS



EV 101 EV 201

<p>INSULATION & WEATHERIZATION</p>  	<p>RAIN GARDEN</p>  	<p>SOLAR PANELS</p>  
<p>HEAT PUMP</p>  	<p>LED LIGHTING</p>  	<p>RECYCLING & COMPOSTING</p>  

Partners

Eastern Carver
County Schools



Exceptional, personalized learning



Many Thanks

Green Committee

John Crampton

Pdon Pinkham

Amanda Fineran

Bob Gerdes

Al Greimel

Eric Duvall

Larry Klueh

Bart Roush

Many Thanks

Photos-Web-Facebook-Flyers-Drone Video

Don Alman

Ruth Dukelow

Sue Gjerset

Randy Dop (on leave from AFU Ukraine) 

Amanda Fineran

Many Thanks

Volunteers

Kylie Borchardt

Patty Nail

Karen Gerdes

Linda Johnson

Mary Koon

Wayne Vaughn

Gar Nordin

Leroy Horn

Daryl Thayer

Many Thanks

Volunteers

Ron Dubis

Bob Crum

Sandy Crum

Deb De Meester

Paul Schalekamp

Rod Myers

We're Kicking Gas at Oak Grove

*... with a few words from a former
Republican Governor of California...*



https://www.youtube.com/watch?v=UGrE_I3OzRY