Transportation & Climate Introduction

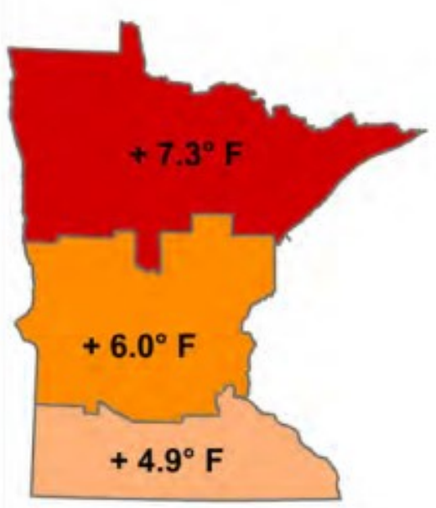
METROPOLITAN COUNCIL

TPP Advisory Work Group March 17, 2023 metrocouncil.org

Climate Change Impacts in MN

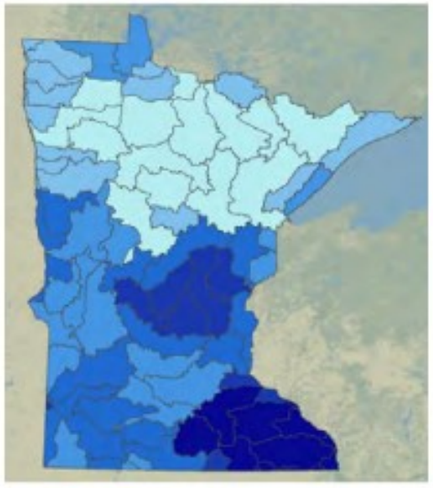
- Environment
- Infrastructure
  - Extreme rains cause major destruction
- Agriculture
  - Changes challenge crop production
  - Animals feel the heat
- Vulnerable populations

[Minnesota Pollution Control Agency: Climate change impacts]



Minnesota is getting warmer, especially winter nights in the northern parts of the state.

Change in daily average minimum temperature during winter (Dec-Feb), 1895-2021.



Minnesota is getting wetter, especially the southern parts of the state.

Annual precipitation change by watershed for 2000-2019, compared to 20th century averages.

Climate

Mitigation

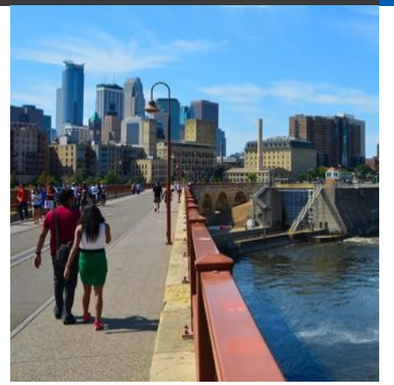
- Reduce contributions to climate change
- The focus of today

Adaptation (Resiliency)

- Reacting to and hardening infrastructure to adapt to a changing climate
- Will be addressed in broader goals discussion

Climate Goals

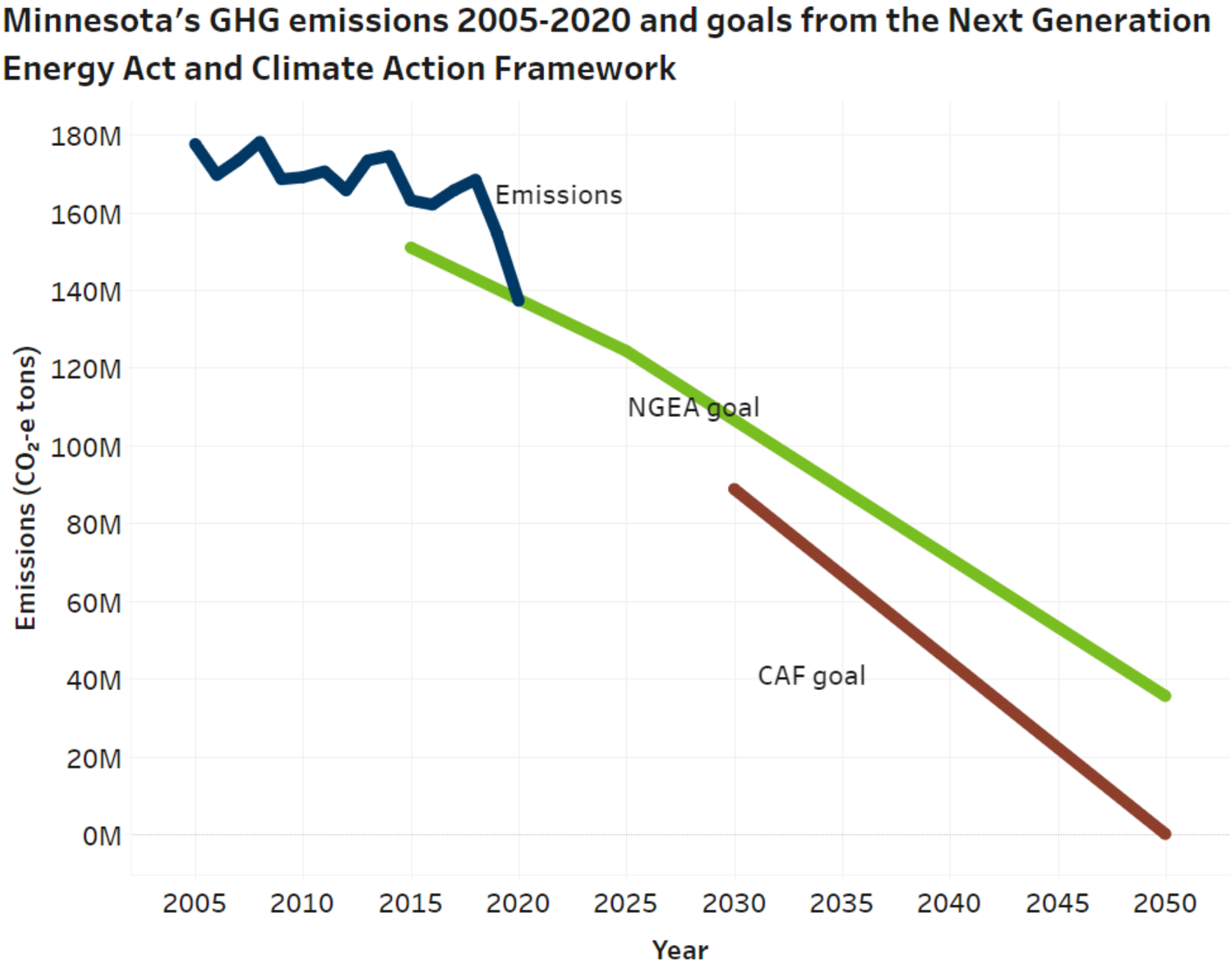
- US
  - 2005 to 2030 reduce 50-52%
  - 100% carbon pollution-free electricity by 2035
  - Net-zero emissions by 2050
  - 40% of benefits to disadvantaged communities (Justice40)
- Minnesota
- Twin Cities region
  - Regional Vision statement: *We lead on addressing climate change*
- Local



Minnesota Climate Goals

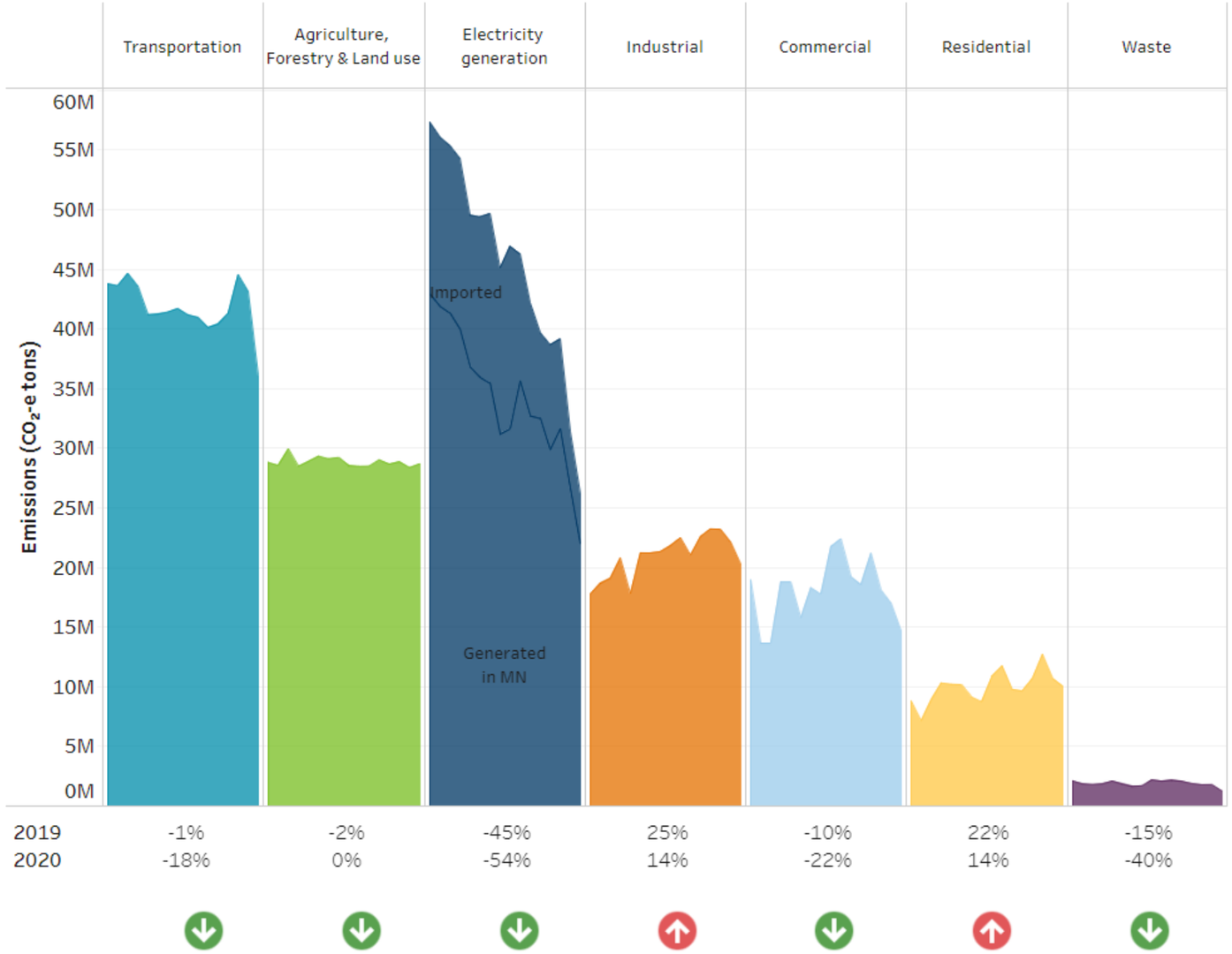
- 2007 Next Generation Energy Act:
  - 30% reduction by 2025
  - 80% reduction by 2050
- Climate Action Framework:
  - 50% reduction by 2030
  - 100% reduction by 2050

[MPCA GHG Emission Inventory, Total GHG Emissions and Goals]



Greenhouse Gases by Sector in Minnesota

- Chart shows change 2005-2020
- Reduced GHG from electricity generation
- Modest declines in Transportation due to improved fuel efficiency
- Transportation now largest contributor to GHG



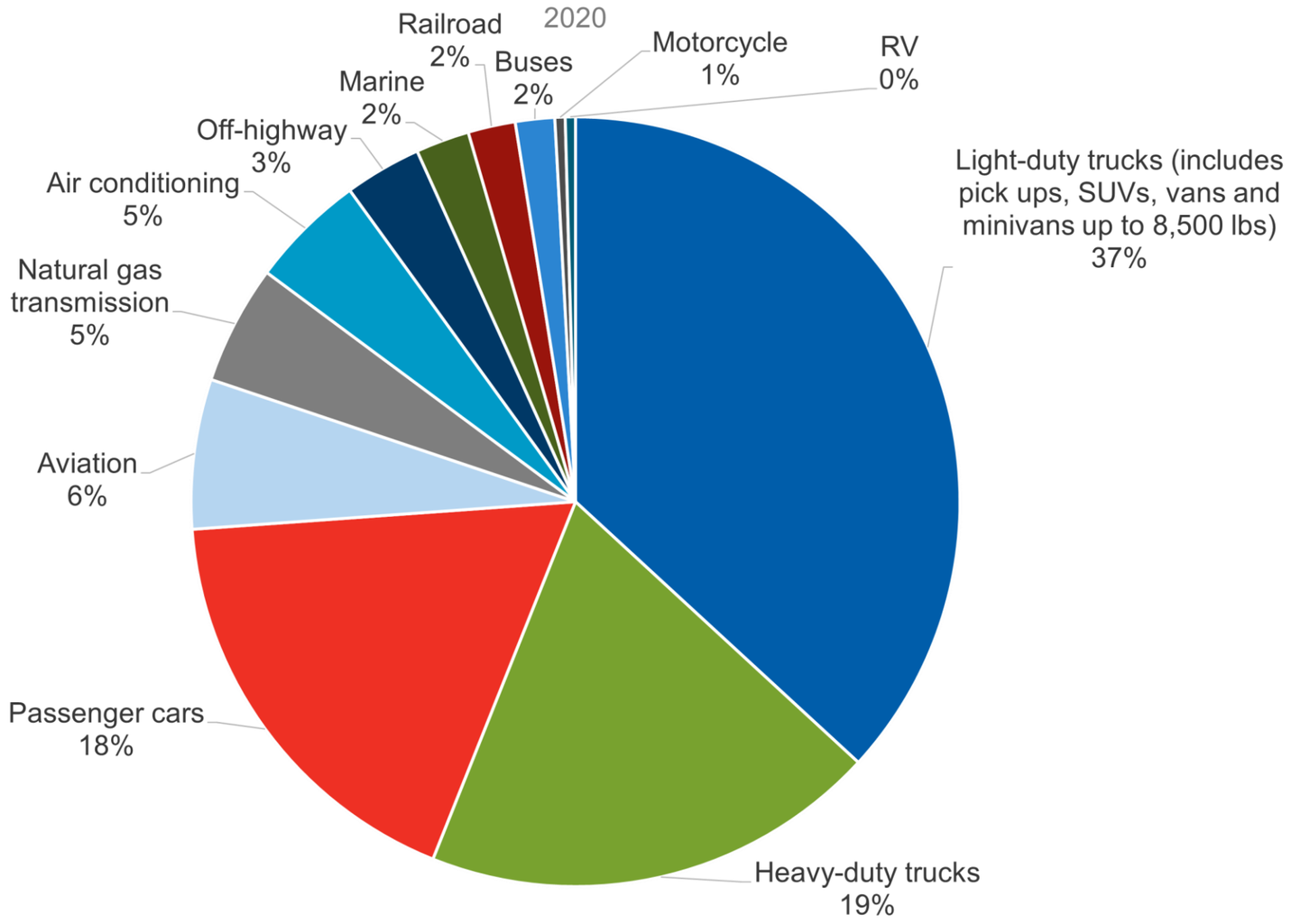
MPCA GHG Emissions Inventory, Change in Emissions by Sectors, 2005-2020

Metropolitan Council

Greenhouse Gases in MN Transportation

- 56% of GHGs from light-duty vehicles
- 19% of GHGs from heavy-duty trucks
- 25% of GHGs from other

[MPCA GHG Emissions Inventory, Sources of 2020 Emissions by Sectors]



Transportation Climate Mitigation Strategies

1. Replace travel (e.g., telecommuting, telehealth, broadband)
2. Shift travel to low carbon modes (e.g., land use, walking, biking, transit)
3. Substitute for low carbon fuels (e.g., electric vehicles, hydrogen)

MN Climate Action Framework

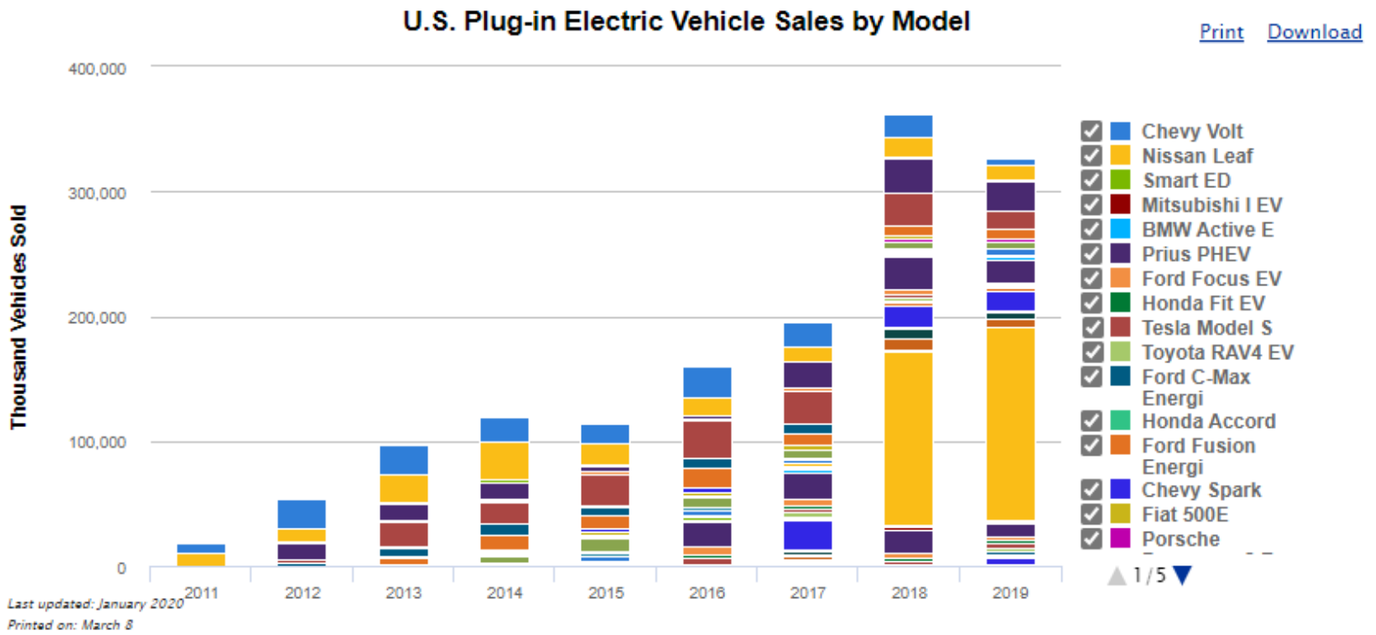
- Connected communities: Maintain and improve multimodal transportation connections to reduced emissions and congestion.
- Clean and efficient vehicles: Accelerate the transition to electric vehicles, alternative fuels, and greater fuel efficiency.

Co-benefits

- Equity
- Public health
  - Clean air
  - Active lifestyle
- Employment and economic development
- User and agency costs

Electric Vehicles

- US goal: Half of all new vehicles sold in 2030 zero-emissions vehicles
- MN goal: 20% of all passenger vehicles to be EVs by 2030
- EVs 5.8% of sales in 2022 (3.2% in 2021)
- IIJA included $7.5 B for public chargers
- Private sector investing:
  - New EV models
  - Battery chemistry and production capacity



Source: Transportation Research Center at Argonne National Laboratory

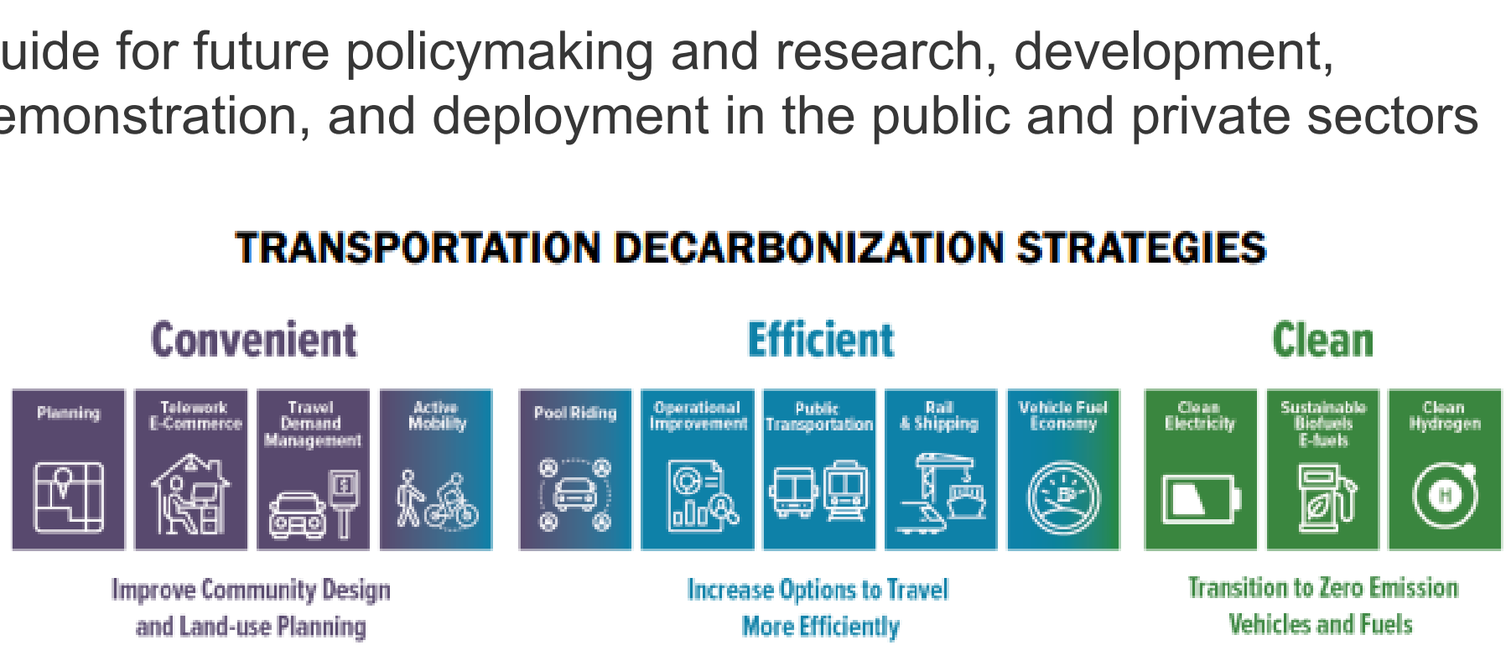
Sales of plug-in electric vehicles (PEVs) grew rapidly from 2011 to 2018. Technology improvements, cost reduction, increasing model choice, maturing charging infrastructure, and economic recovery have continued to influence and support increased sales. Until 2018, the Chevrolet Volt had been on the market the longest and had the most overall sales, but the model was discontinued in 2019. In 2018, the newly introduced Tesla Model 3 rapidly increased vehicle sales and established the vehicle as the best-selling plug-in electric vehicle with nearly 50% of the market share.

To view more details, notes, and acronyms, please download the Excel spreadsheet.

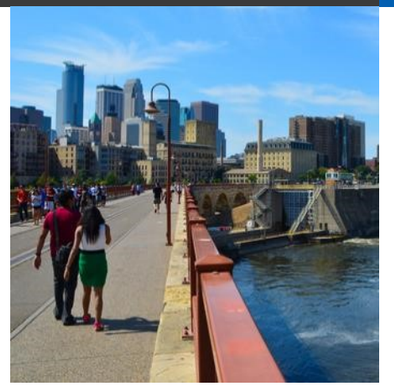
Argonne National Laboratory: Light Duty Electric Drive Vehicles Monthly Sales Updates

US National Blueprint for Transportation Decarbonization

- Implementing a holistic decarbonization strategy will require coordinated actions
- Guide for future policymaking and research, development, demonstration, and deployment in the public and private sectors



US Department of Energy: The U.S. National Blueprint for Transportation Decarbonization



State Transportation Climate Projects

Joint

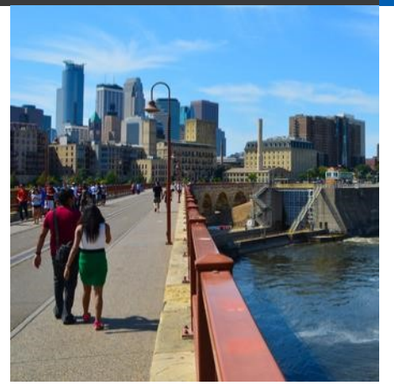
- 2019 Pathways to Decarbonization
- MN Climate Action Framework

MPCA

- Volkswagen Settlement
- Clean Cars MN
- Greenhouse gas emissions in MN

MnDOT

- 2021 MN EV Assessment
- Sustainable Transportation Action Council
- State Multimodal Transportation Plan
  - 20% VMT per capita reduction by 2050
- Infrastructure Investment and Jobs Act
  - National EV Infrastructure Program
  - Carbon Reduction Strategy
  - Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation



MN Climate Action Framework
Clean Transportation Priority Actions

Increase funding for non-motorized transportation

Increase transit service

Plan land use and transportation together

Continue exploring opportunities for a clean fuels standard

Expand regional charging

Develop a Minnesota EV plan

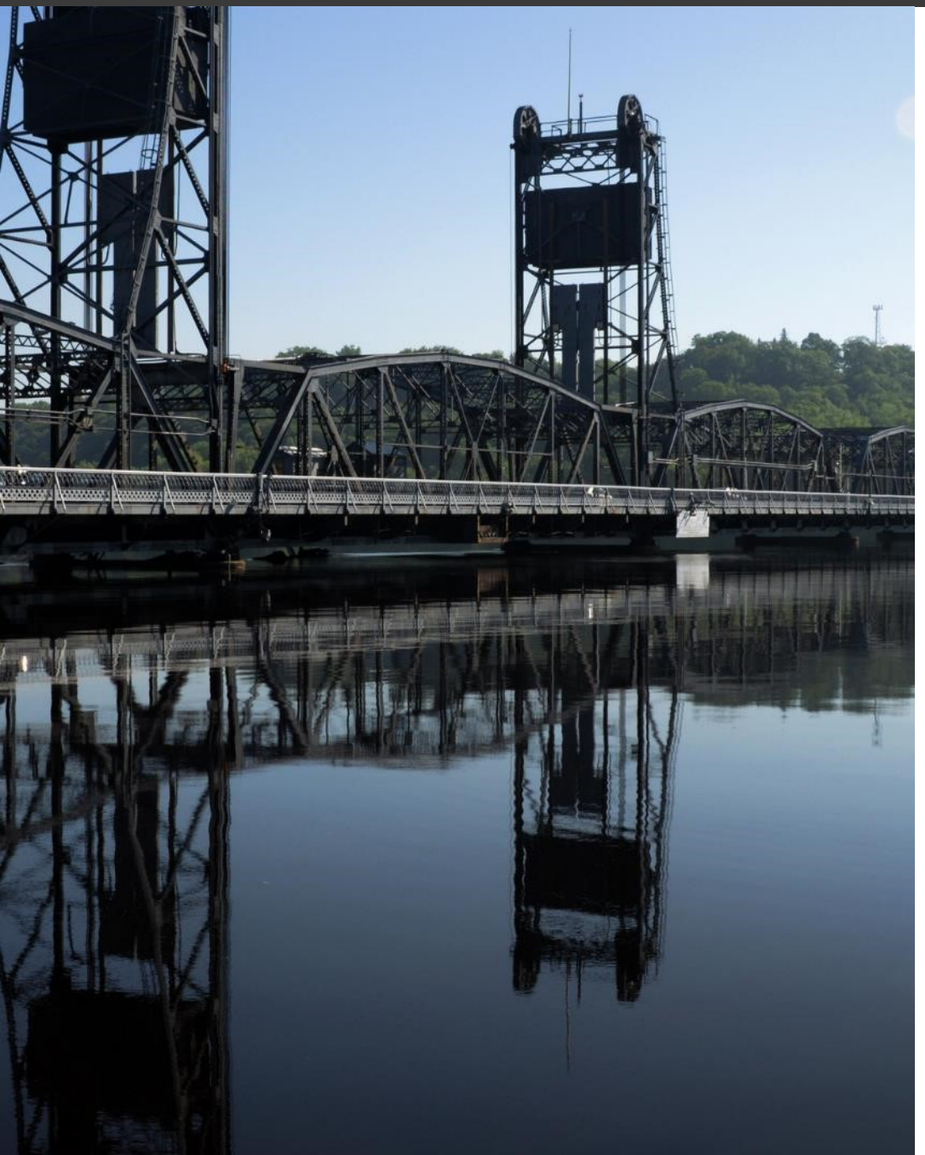
Council Transportation Climate Projects

- Past
  - 2021 EV Planning Study
  - Zero Emission Bus Transition Plan
  - Climate Action Work Plan
- Present
  - GHG Inventory and Scenario Planning Tool
  - Metro Transit TOD Office
  - Regional Travel Demand Management Study
  - VMT Reduction Mode Shift Study
  - Regional Transportation and Climate Change Multimodal Measures Study
  - Carbon Reduction Program funds
- Future
  - Influence regional investments (Regional Solicitation Evaluation)
  - Electric Vehicle Public Engagement and City Support
  - Electric Vehicle Public Charging Needs Analysis
  - ?

Next Steps for TPP around Climate

- Develop goals and objectives
- Develop policies and actions
- Drafting chapter outline
- Implement policies and actions through investments (Regional Solicitation, Carbon Reduction Program, etc.)
- Develop climate studies/work program for 2025 onward

Discussion



- What regional **goals and objectives** do you want on mitigating climate change?
  - 20% per capita VMT reduction
  - 20% EVs on MN roads by 2030
- Any ideas for climate **studies or technical support** we might provide?

Thank you

Tony Fischer

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