

# PATHWAYS TO DECARBONIZING TRANSPORTATION PROJECT SUMMARY

August 8, 2019

Minnesota's climate is changing, which already affects our health, environment, and economy, with warmer winters and more precipitation being recorded, which is forecast to increase in the future. The Pathways to Decarbonizing Transportation project began a statewide conversation about moving Minnesota towards a low-carbon transportation future to help avoid the catastrophic impacts of climate change.

In 2007, the state passed the bi-partisan Next Generation Energy Act that established goals for the state to reduce greenhouse gas emissions by 15 percent below 2005 levels by 2015, 30 percent by 2025, and 80 percent by 2050. However, the state did not meet the 2015 goal and is not on track to meet our future goals. Transportation is now the largest emitter of GHGs in the state. To achieve our GHG reduction goals, state-level action is needed and there are many opportunities for immediate action in the transportation sector.

Pathways was a collaborative effort between the Minnesota Department of Transportation, Environmental Quality Board, Minnesota Pollution Control Agency, Minnesota Department of Agriculture, and the Minnesota Department Commerce.

The purpose of Pathways was to explore opportunities for GHG emission reductions from surface transportation: passenger cars and trucks, medium-duty and heavy-duty trucks, buses, motorcycles, and mobile air conditioning.

The project had three connected parts :

1. Coordinate with state and national experts to develop a model with inputs and assumptions based on their expertise.
2. Model future scenarios of GHG emissions.
3. Engage with Minnesotans around the state to hear their thoughts on opportunities and challenges for reducing GHG emissions from transportation in their communities.

## TECHNICAL STAKEHOLDER INPUT AND MODELING RESULTS

Transportation and energy experts were consulted during two workshops to provide input on effective GHG reduction strategies and identify the best data and assumptions to use in modeling. Modeling showed that Minnesota can achieve NGEA goals, but 1) immediate action is needed; 2) action is needed across vehicle classes and sectors; 3) there is no "silver bullet" or single action or sector that alone can achieve these goals.

The project modeled three scenarios:

### 1 REFERENCE SCENARIO

"Business-as-usual," only includes current policies, i.e., no action, and assumes that current federal fuel economy standards will be weakened starting in model year 2021.

### 2 80 X 50 SCENARIO (SCENARIO #1: 80 X 50)

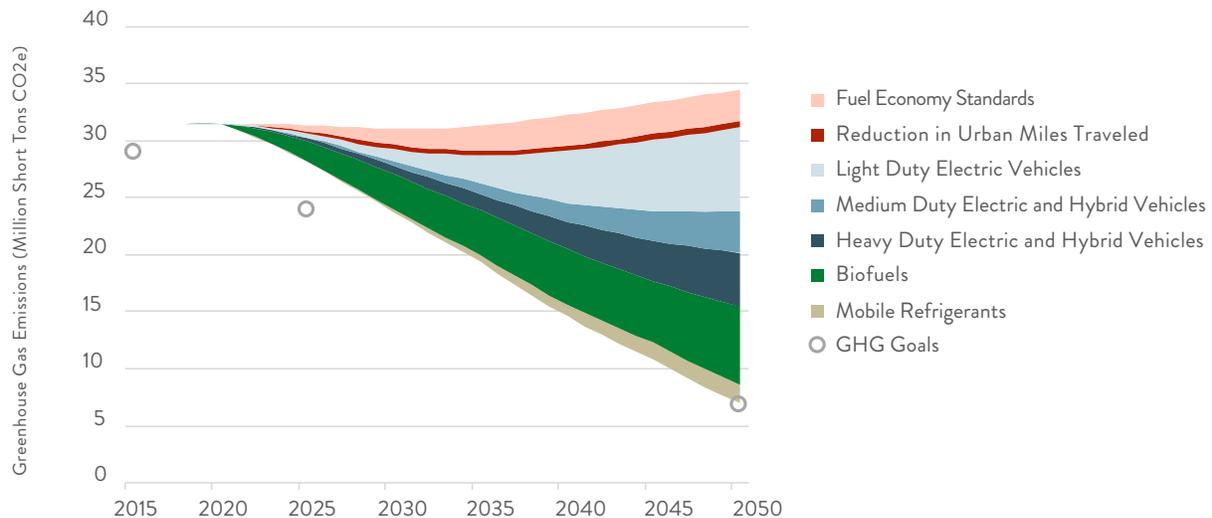
Combination of strategies to achieve the 80 percent statutory NGEA GHG reduction goal for 2050.

### 3 100 X 50 SCENARIO (SCENARIO #2: 100 X 50)

Combination of strategies to achieve zero transportation emissions by 2050. To achieve economy-wide GHG reduction goals, transportation may need to compensate for other sectors where targets are harder to achieve. Further, scientific consensus suggests that total decarbonization is needed to avoid the most catastrophic results.

For each scenario, modeling included maintaining current fuel economy standards; reducing vehicle miles traveled in urban areas; increasing adoption of electric vehicles, hybrids, and biofuels across all vehicle classes; increasing renewable energy to fuel EVs, reducing the carbon impact of biofuels; and eliminating refrigerants with high global warming potential. Modeling did not identify the specific policies or actions needed to achieve the reduction (Figure 1).

**Figure 1: Emission reductions by measure, 80x50 scenario**



## PUBLIC INPUT

The project team held meetings across the state, offered an online survey and a webinar to get additional public input and received more than 400 comments. The following general themes emerged:

1. There is a climate crisis and swift action across many sectors is needed.
2. More transportation options are needed:
  - More electric vehicle (EV) options at dealerships and more used EVs
  - Safe and accessible walking and biking infrastructure
  - High quality public transportation
  - Electric buses
  - More EV chargers
3. Environmental justice and equity needs to be at the center of climate action.
4. Both local and statewide solutions are needed. Differences between urban and rural areas need to be factored into solutions.
5. Transportation solutions must be integrated with other systems, including energy generation, land use decisions and other state and local policy.
6. Co-benefits of climate action are critical. Climate policies can and need to lead to healthier, more equitable, resilient, and economically robust communities.

## RECOMMENDATIONS AND NEXT STEPS

MnDOT used feedback from technical experts and the public to develop the actions and recommendations in this report. Actions can be taken by MnDOT now and recommendations are meant for consideration by other state agencies and the Governor. These are important first steps, but only the beginning. The actions and recommendations in the report alone will not achieve the NGEA GHG goals.

### Find Integrated Solutions

Efforts to decarbonize transportation must go beyond a single policy, effort, or agency as it will impact other sectors as well, particularly agriculture and electricity generation. Participants were clear that solutions must focus on equity and environmental justice.

- **Sustainable Transportation Advisory Council:** MnDOT will create a new council to advise the state on reducing transportation GHG emissions, while promoting safety, equity, environmental justice, economic development, and multimodal transportation options. STAC will include leaders from state agencies, local government, frontline communities, and the public, private, and nonprofit sectors. (Action)
- **Regional collaboration on EV corridors:** Minnesota needs to lead a collaboration with Midwest states to create shared marketing and outreach materials, support interoperability standards, avoid redundancies in charger siting, demonstrate a broader Midwest market for EVs, and increase efficiencies by sharing best practices. (Recommendation)

### Build and EV Market and Provide More EV Options

Technical stakeholders, the public, and representatives from Minnesota's largest employers saw the lack of EV options in the marketplace as a major barrier to EV adoption. There was also concern about the proposed weakening of fuel economy standards by the federal government.

- **Adopt clean car standards:** The Governor's Office needs to encourage MPCA to begin rulemaking for the state to adopt low-emission vehicle standards that maintain fuel economy standards even if the federal government weakens them and adopt zero-emission vehicle standards that require auto manufacturers to offer more EVs in Minnesota to support consumer choice. (Recommendation)

### Promote Biofuels to Reduce GHG Emissions and Support Rural Minnesota

Biofuels are important for Minnesota and modeling showed that action is needed across all vehicle classes and sectors, including increased use of biofuels, to achieve the state's NGEA GHG goals.

- **Strengthen Petroleum Replacement Goals:** Minnesota needs to strengthen its Petroleum Replacement Goals (Minn. Stat Sec. 239.7911) through additional mandates and incentives to ensure that higher biofuel blends are available. (Recommendation)
- **Expand biofuel infrastructure:** Minnesota should provide financial and technical assistance to build out the wholesale and retail infrastructure that will be needed to supply ethanol blends higher than 10 percent and biodiesel blends higher than 20 percent. (Recommendation)

- Higher biodiesel blends and renewable diesel: Minnesota needs to expand the use of biodiesel beyond the 20 percent summer mandate period, either by extending the mandate into cold weather months or using blends above 20 percent. Facilitate ways to use renewable diesel, a drop-in diesel fuel replacement, in Minnesota. (Recommendation)
- Carbon impact of biofuels: Minnesota should create incentives for measures, such as production plant improvements and regenerative farm practices, which reduce the carbon impact of biofuels. (Recommendation)

### **Fund EV Infrastructure**

The second highest overall support for state policies to decarbonize transportation was to fund more EV infrastructure around the state.

- Clean transportation funding: MnDOT should help the state plan for the transition to a low carbon transportation system and identify funding for a new competitive funding pilot program to support this transition. The STAC may develop grant criteria, evaluate proposals, and identify successful applicants. (Recommendation)

### **Provide EV Incentives**

Participants supported financial and nonfinancial incentives for EVs in an effort to increase their adoption in Minnesota, especially for passenger vehicles. Incentives have been especially effective in states that have adopted the Zero Emission Vehicle standard, which attracts more EV models than are available in state's without the ZEV standard<sup>22</sup>. Incentives also help offset the higher cost of an EV compared to a conventional internal combustion vehicle.

- MnPASS incentive: MnDOT will develop and implement a pilot project that provides MnPASS customers who purchase or lease a new or used EV between November 1, 2019, and October 31, 2022, a one-time credit to pay charges for using MnPASS lanes. (Action)

### **Provide More Transportation Options on Projects**

Public comments supported actions that reduce vehicle miles traveled because of their potential to reduce GHG emissions and because of the health, equity, and safety benefits that come from walkable and bikeable communities.

- Analyze greenhouse gas emissions in transportation projects: Starting on January 1, 2020, MnDOT will analyze GHG emissions from transportation project construction and operations (traffic emissions) as part of the environmental analysis. (Action)