Comprehensive Climate Action Plan

for the Greater Chicago area

Transportation Working Group
June 26, 2025

For
NIRPC Transportation Committee
September 9, 2025

COMPREHENSIVE CLIMATE ACTION PLAN FOR GREATER CHICAGO

Overview

1. Project summary
2. Initial emissions modeling results and assumptions for transportation
3. Critical strategies, barriers, and actors
4. Next steps

Climate Planning at NIRPC

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Climate Planning at NIRPC

- Multi-stakeholder effort
- Encouraging long-term action, engagement and implementation of local climate action plans
- Includes:
  - ✓ NWI Regional Greenhouse Gas Inventory
  - NWI Regional Climate Action Plan Framework
    - Local CAP Support
  - NWI Regional Climate Resilience Plan

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CLIMATE ACTION NWI

nirpc

2021

2022

2023

NWI 205

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Climate Pollution Reduction Grants program

Metropolitan Mayors Caucus in partnership with CMAP and NIRPC

Deliverables:

✓ Priority Climate Action Plan

❑ **Comprehensive Climate Action Plan**

❑ Status report

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Tasks and timeline

Establish guiding principles **(complete)**

Create greenhouse gas inventory **(complete)**

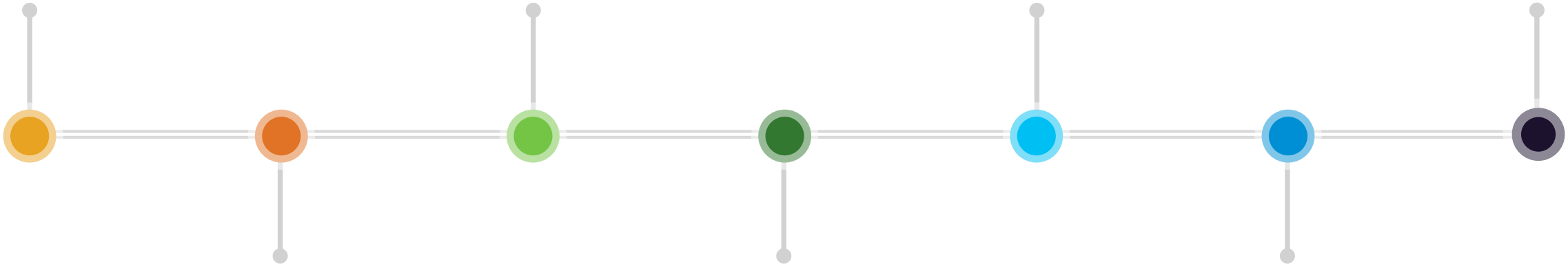
Set reduction targets **(complete)**

Identify strategies to reduce emissions **(complete)**

Estimate how strategies impact emissions **(underway)**

Analyze how strategies impact communities **(underway)**

Complete the plan **(by 12/1/25)**



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Economy Wide GHG Overview

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2020 GHG inventory, emissions by county

Total emissions:

152 million metric tons of carbon dioxide equivalent (MMT CO2e)

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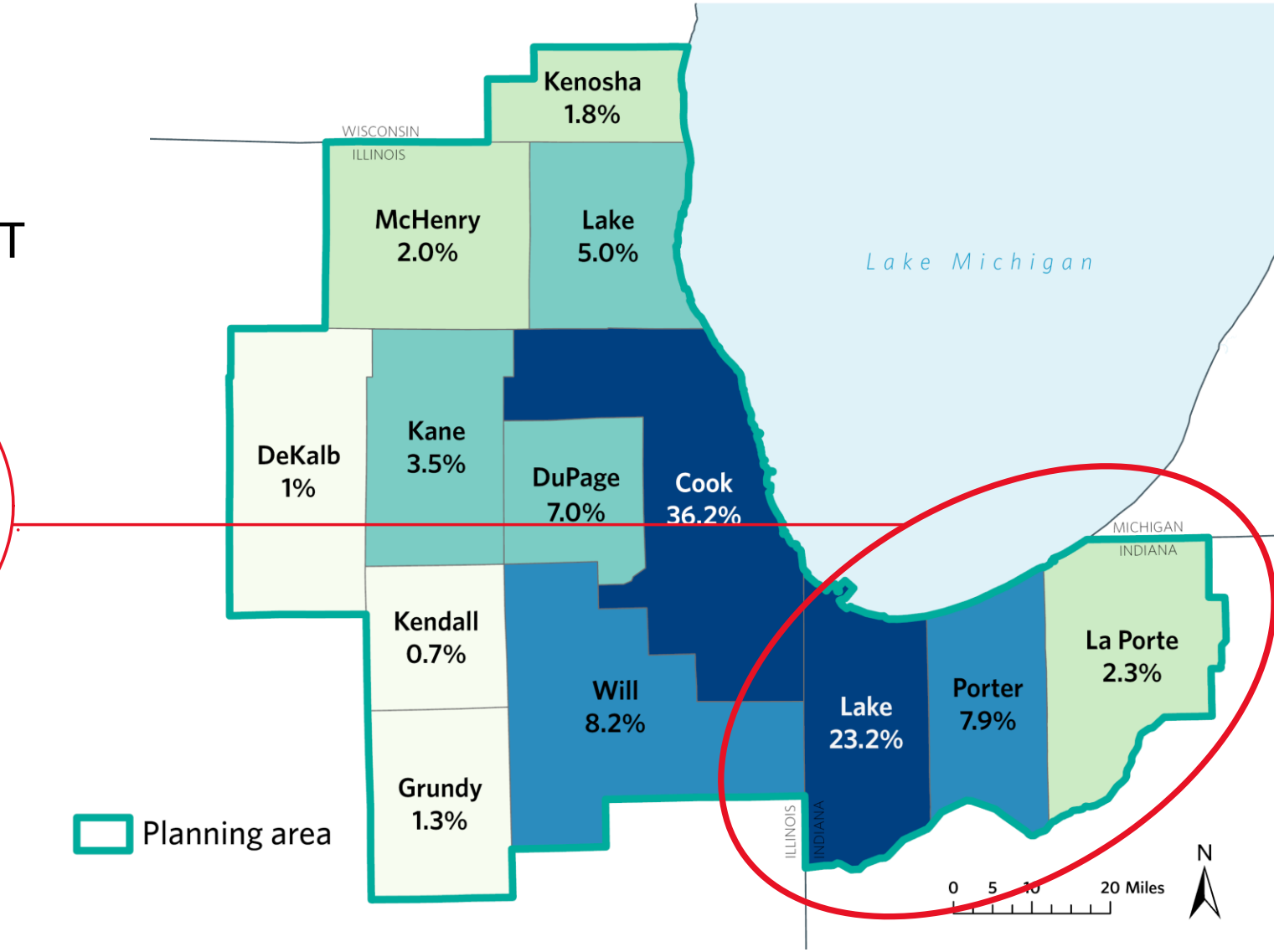
NWI 2017 Total Emissions: 54.5 MMT CO2e



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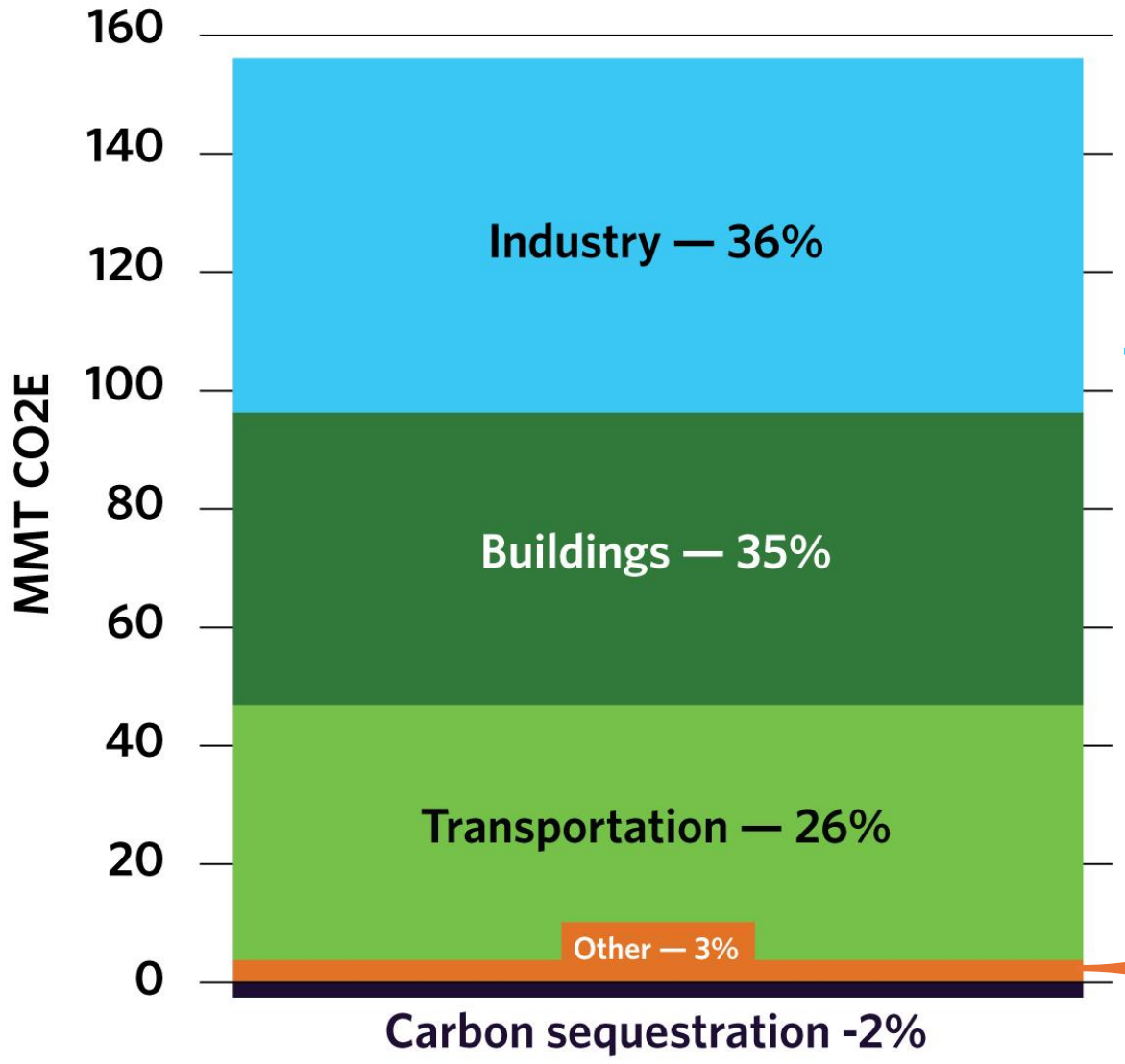
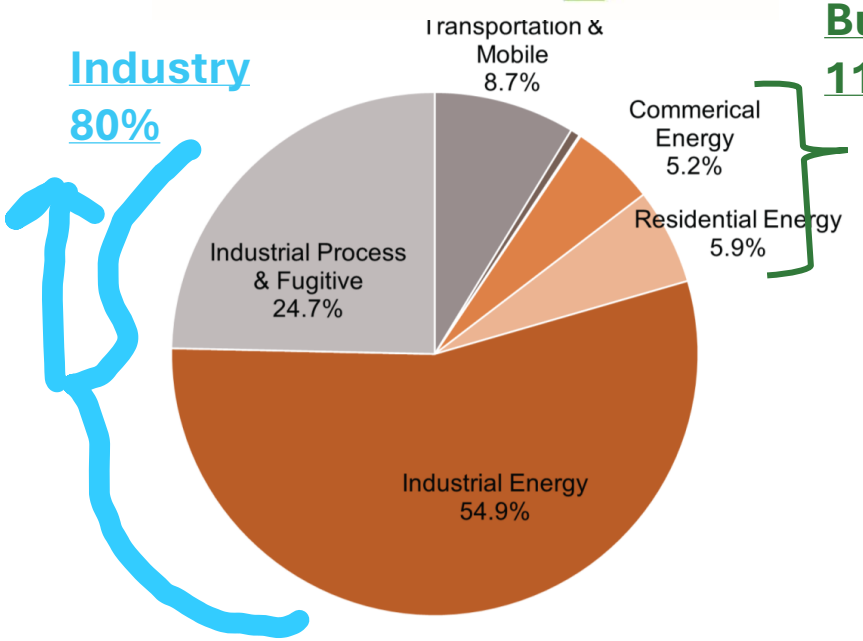
2020 GHG inventory, emissions by sector





Industry 80%

Buildings 11%

Other – 3%
Agriculture
Water/wastewater
Waste

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Economywide target

80-85% reduction of gross GHG emissions by 2050 within the greater Chicago area

- Reductions in 2005 levels
- Encompasses all sectors
- Aligns with targets set by CMAP, City of Chicago, and the Metropolitan Mayors Caucus

“Gross” emissions are emissions generated before accounting for carbon sequestration (by natural or other means)

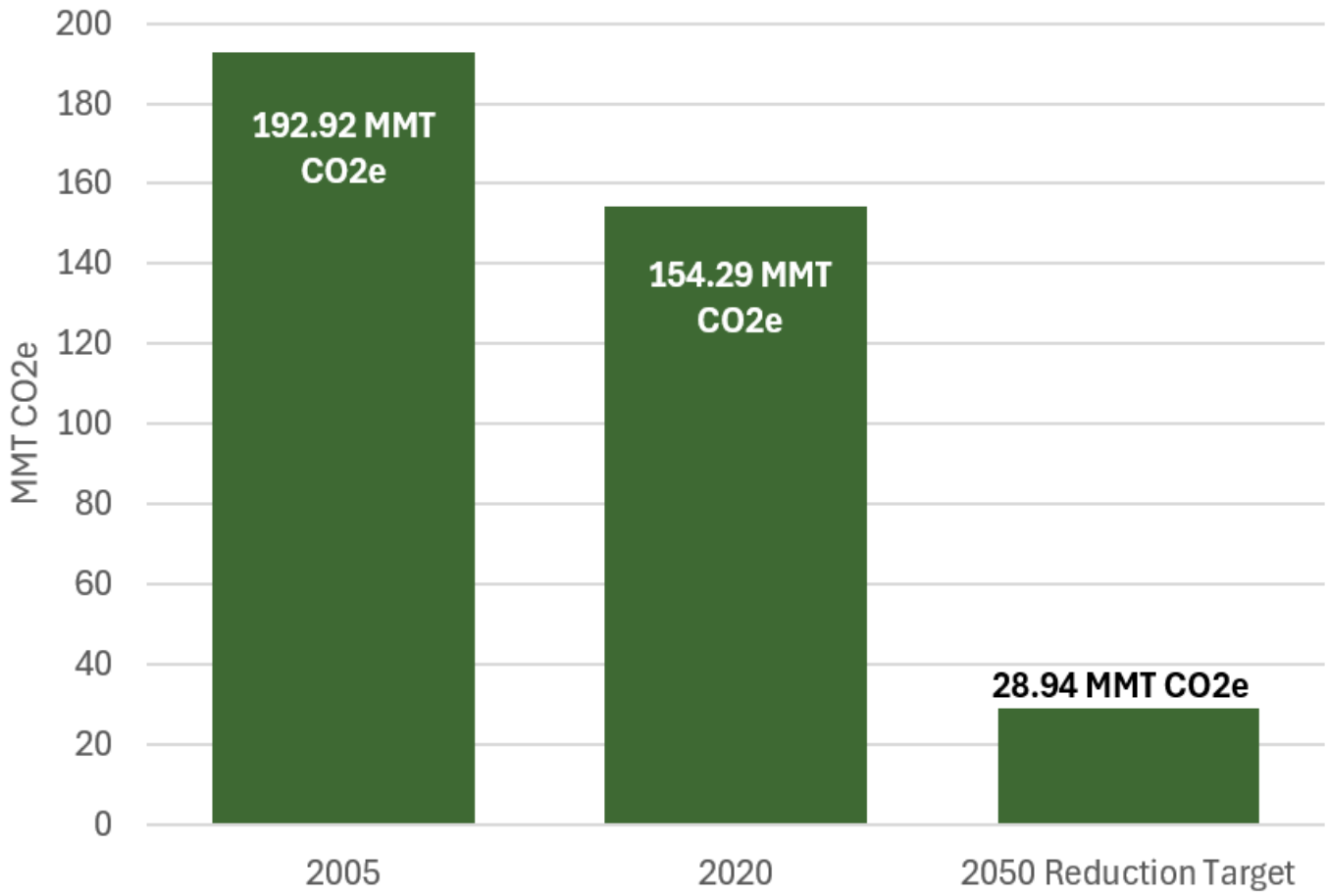
GHG emissions: 2005, 2020, and 2050 target

20% reduction between 2005 and 2020

- 39 MMT CO2e

Additional 65% reduction needed to meet 80-85% target by 2050

- 125.35 MMT CO2e



Emissions depicted represent gross emissions

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GHG emissions reduction scenarios

Current policy	What GHG emissions could be in the future given existing state and federal policy*
Plan implementation	Shows how the plan reduction measures will reach the 80-85% reduction target Includes all actions needed – state, local, and federal, as well as technology innovation
State and local portion	Highlights state and local actions that can be led by state and local actors

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Broad assumptions and limitations

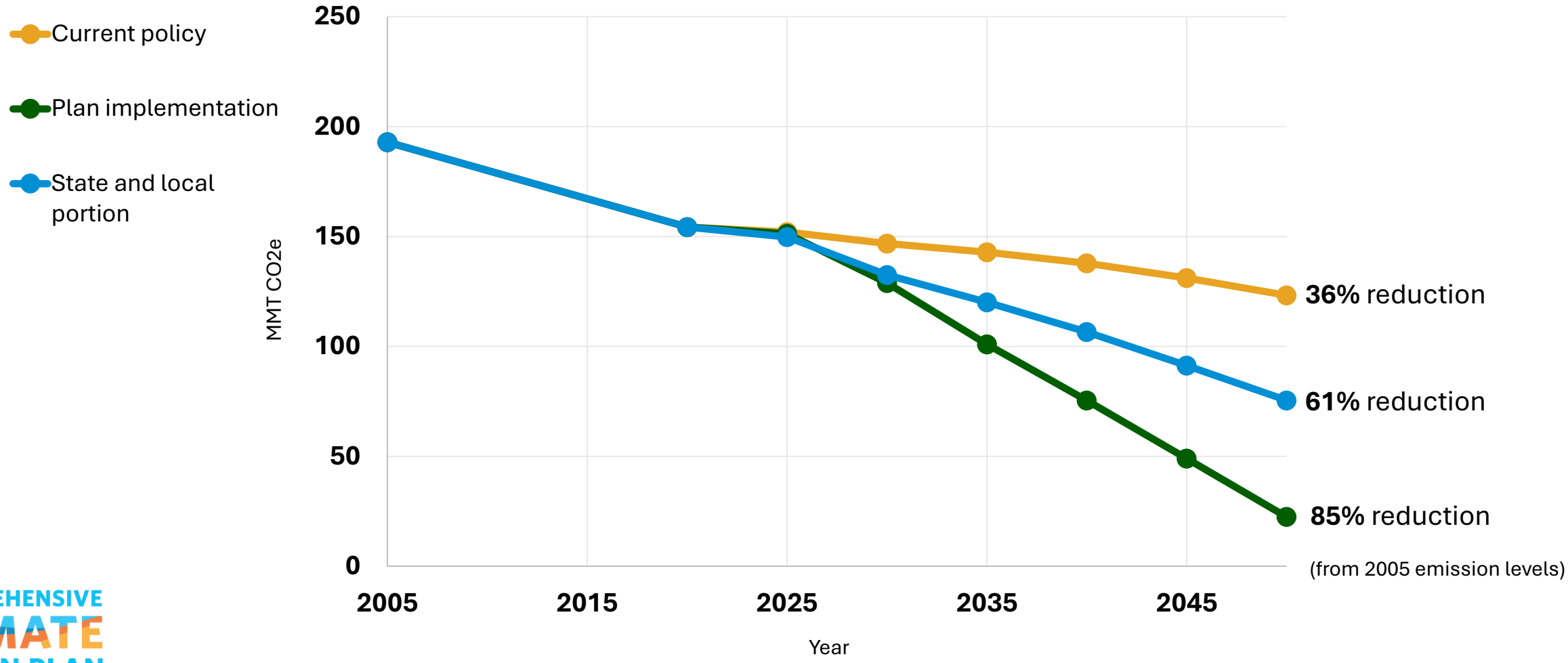
Current policy scenario

- Reflects federal and state policies in place at the time of modeling
- No speculative policy shifts were incorporated
- Does not capture full extent of existing state and local programs

Plan implementation scenario

- *State and local portion only*: Built on successful programs and policies in the region or U.S. jurisdictions
- Informed by national or state-scale modeling and benchmarks needed to close remaining emissions gap

GHG emissions scenarios – economy-wide results



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Transportation Sector Emissions

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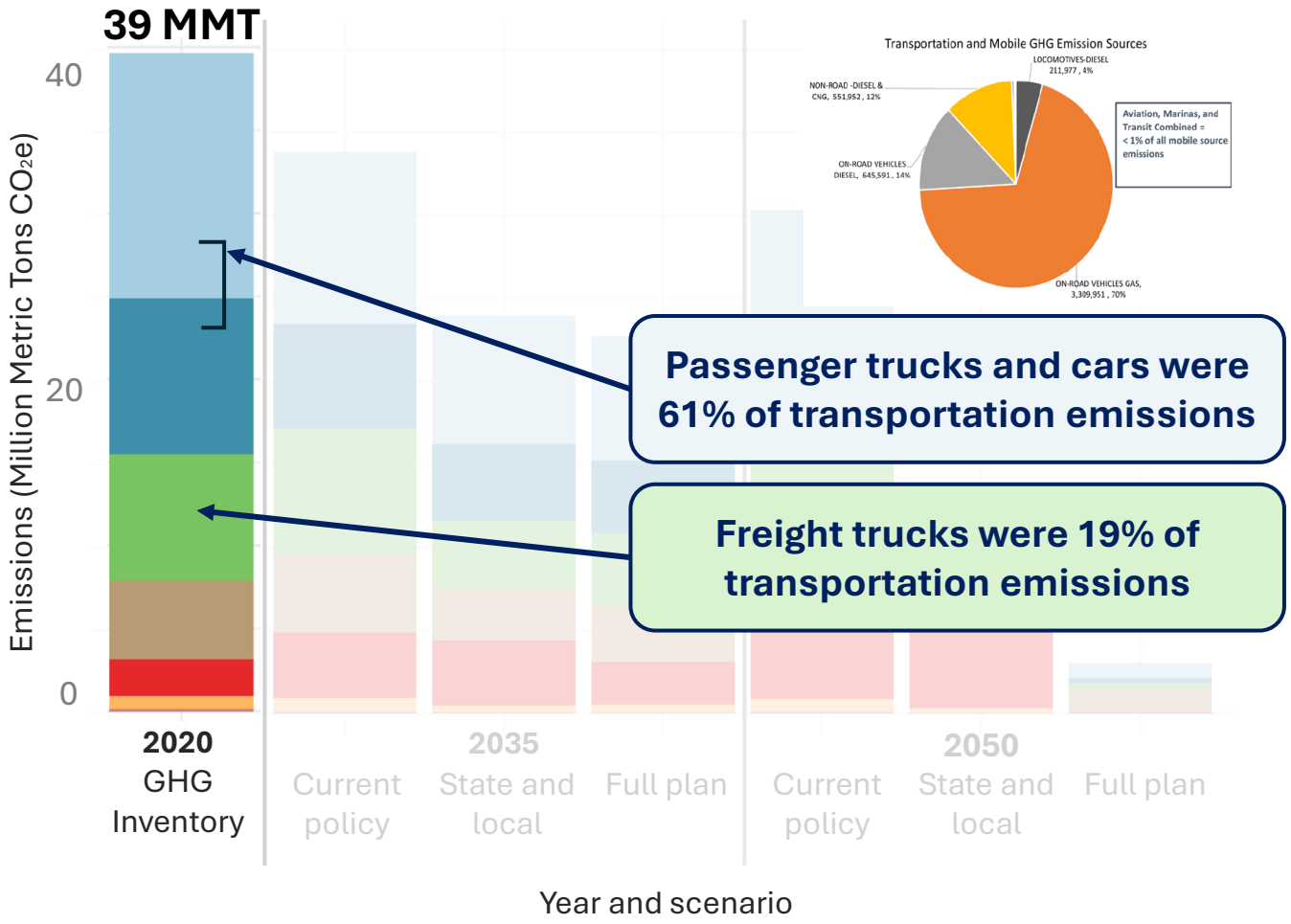
Transportation sector: 2020

2020 GHG Inventory



Subsector

- Passenger Trucks
- Passenger Cars
- Freight Trucks
- Off Road
- Aviation
- Rail
- Buses
- Marine

How do we get there?

Decarbonization objectives and strategies

Quantifiable reduction measures to demonstrate pathway to meet 2050 target

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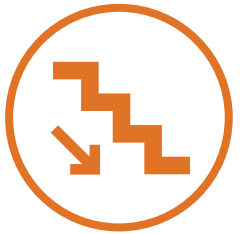
Transportation sector decarbonization objectives

Electrify vehicles

Increase fuel efficiency and adoption of low-carbon fuels



Manage travel demand

Increase transportation efficiency

Increase transit ridership

Increase active transportation

Transportation objectives modeled

Objectives	Reduction measures
Electrify vehicles	1. Increase annual sales share for electric vehicles by vehicle class 2. Electrification of off-road vehicles, reflected by shifts in gasoline and diesel demand 3. Electrification of locomotives, reflected by shifts in diesel demand 4. Electrification of marine vessels, reflected by shifts in fuel type and/or demand
Increase fuel efficiency and the adoption of low-carbon fuels	5. Shifts in fuel efficiency standards, reflected in the light-duty and medium-to-heavy-duty vehicle sales by model year 6. Shifts in renewable/synthetic fuel blend demand for other transportation modes and equipment
Manage travel demand	7. Reduce the annual average VMT by vehicle class
Increase transportation efficiency	
Increase transit ridership	
Increase active transportation	

Initial emission reduction modeling results

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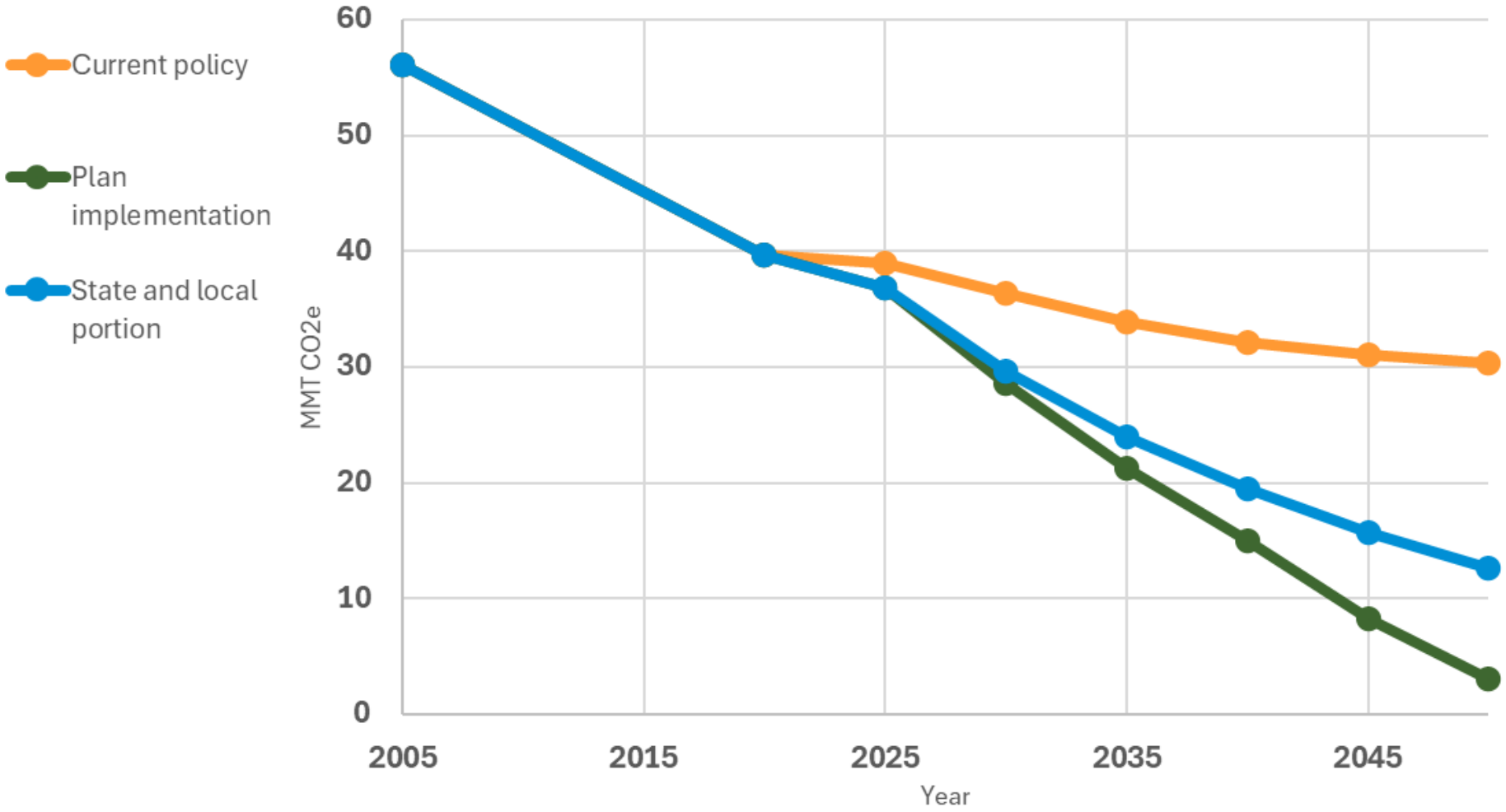
Transportation emissions trends (2005 – 2020)

Emissions reduced by 29%

Driven by fuel economy standards and a gradual increase in electric vehicles

- Energy Independence and Security Act (2007)
- Energy Improvement and Extension Act (2008)
- Clean Air Act / Endangerment Finding (2009)

GHG emissions scenarios – transportation sector results



46% reduction

78% reduction

95% reduction

Transportation sector implementation assumptions

Scenario	Strategy (Reference policy/program)	Description
Current policy (46% reduction)	**Illinois Climate and Equitable Jobs Act (CEJA) electricity generation emissions rules** (IEPA)	Requires Illinois to reduce all CO2e and co-pollutant emissions from electricity generation units by 2045 and get 1 million electric vehicles (EVs) on the road by 2030
	Federal fuel economy and emissions standards (USDOT)	Finalized National Highway Traffic Safety Administration fuel economy standards and USEPA vehicle emissions standards for model years 2027-2032 for both passenger and freight vehicles
	Inflation Reduction Act (IRA) incentives (USEPA)	Federal incentives for renewable electricity generation, hydrogen production, CO2 capture and sequestration and electric vehicles

Transportation sector implementation assumptions (cont.)

Scenario	Strategy (Reference policy/program)	Description
Plan implementation - state and local portion (78% reduction)	**National Renewable Energy Lab (NREL) Standard Scenarios** (NREL)	Influences the adoption rate of renewable electricity generation for non-Illinois counties.
	Manufacturer EV sales requirements for light-duty vehicles – California Air Resources Board's (CARB) Advanced Clean Cars II (ACCII) (CARB)	Requires that 100 percent of new light-duty vehicles sold are EVs or plug-in hybrids by 2035, with up to 20 percent being plug-in hybrid and 80 percent battery-electric vehicles, annually.
	Manufacturer EV sales requirements for medium- to heavy-duty vehicles – CARB's Advanced Clean Trucks (ACT) (CARB)	Requires manufacturers to sell an increasing share of ZEVs for medium- and heavy-duty vehicles starting with model year 2027. By 2035, ZEVs would account for the following percentage of sales annually: • 55 percent for light-medium-duty vehicles • 75 percent for medium-duty vehicles • 75 percent for heavy-duty short-haul vehicles • 40 percent for heavy-duty long-haul vehicles

Transportation sector implementation assumptions (cont.)

Scenario	Strategy (Reference policy/program)	Description
Plan implementation - state and local portion (cont.) (78% reduction)	**Transit bus electrification –** CTA electrification plan (CTA)	Requires 100 percent of transit bus fleets to be electric by 2040, with all new buses being electric starting in 2026.
	School bus electrification – Illinois HB 2287 (Illinois)	Requires 100 percent of the school bus fleets to be electric by 2035, with all new school buses being electric starting in 2028.
	Municipal fleet electrification – City of Chicago's fleet electrification target (Chicago)	Requires 100 percent of municipal fleets to be electric by 2035.
	Low Carbon Fuel Standard (LCFS) - WA Clean Fuel Standard and energy efficiency ratios from the California Transportation Supply model (Washington; CARB)	Sets a carbon intensity target for on-road transportation fuels that requires the average emissions intensity to be 2 percent lower than the average emissions intensity in the baseline year, resulting in a 20% reduction by 2035.

Transportation sector implementation assumptions (cont.)

Scenario	Strategy (Reference policy/program)	Description
Plan implementation - state and local portion (cont.) (78% reduction)	**Lawn and landscaping electrification** – California's Small Off-Road Engines regulation (California)	Requires all gasoline-powered lawn and landscaping equipment/off-road vehicles to be zero-emission by 2035.
	Shore power electrification – CARB's Ocean-Going Vessels at Berth regulation (CARB)	Requires all container, cruise, and tanker vessels to control emissions when docked, with the expectation that this will likely be achieved through the use of electrified shore power.
	VMT per capita reduction – Inclusive of investments in public transit, active transportation, and travel demand management strategies, such as pricing and land use changes (CMAP; NIRPC)	Avoids 15 percent increase in VMT per capita, relative to the regional projections included in the current policy scenario. Two different approaches are applied to the region: • In the CMAP region (7 counties), VMT growth is limited to a 1 percent increase by 2035 and a 2 percent increase by 2050. This equates to a 12 percent reduction in VMT per capita. • In the NIRPC region (3 counties), VMT growth is set at a 20 percent increase by 2050. This equates to a 3 percent increase in VMT per capita.

Transportation sector implementation assumptions (cont.)

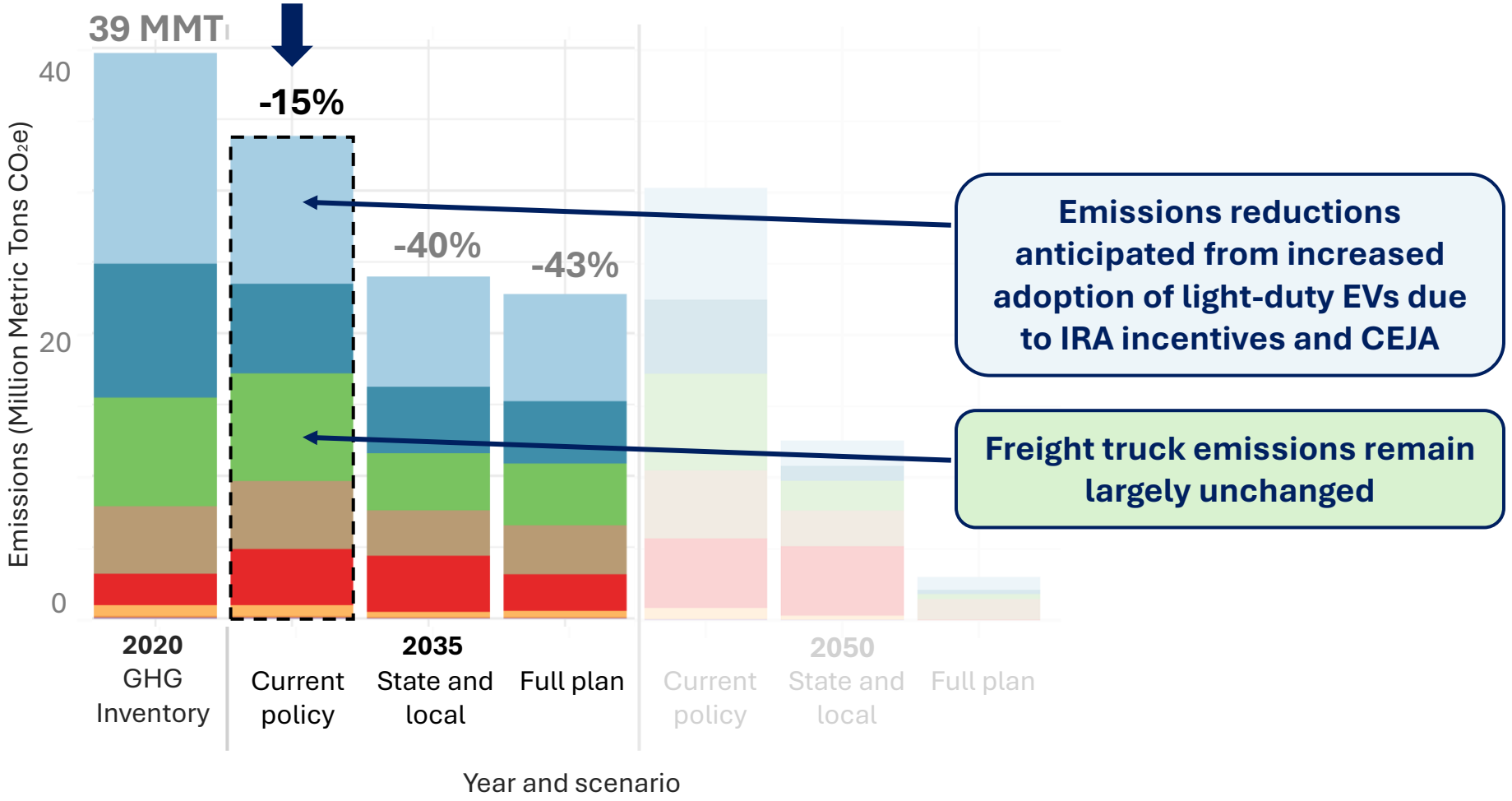
Scenario	Strategy (Reference policy/program)	Description
Plan implementation	**Light-duty vehicle EV adoption rates** (CARB)	Assumes adoption of the Advanced Clean Cars II program, with added provision to ***gradually increase the sales share of battery-electric vehicles starting in 2029***—phasing out plug-in hybrids and transitioning all new sales to battery-electric EVs by 2050.
	Medium- and heavy-duty vehicle ZEV adoption rate – Global Drive to Zero MOU and NESCAUM Multi-State Medium and Heavy-Duty Zero Emission Vehicle Action Plan (CARB; MOU; NESCAUM)	Assumes adoption of the Advanced Clean Trucks (ACT) program. ***After 2035, sales are interpolated to reach 100 percent by 2040***.
	ZEV Transition Bus phase-out targets (ZEV Transition Council)	Assumes that the sales share for buses is consistent with the bus-related policies through 2028, reflecting the first year of the 100 percent EV school bus sales requirement under Illinois HB 2287, and then interpolates the sales share for all buses to reach 100 percent by 2035.

Transportation sector implementation assumptions (cont.)

Scenario	Strategy (Reference policy/program)	Description
Plan implementation (cont.)	**Shore power electrification rates** (CARB)	Expands on the electrification and fuel shifts required by CARB's Ocean-Going Vessels at Berth regulation, resulting in a 100 percent reduction in diesel fuel demand by 2050.
	Sustainable aviation fuel blending targets – U.S. Department of Energy, U.S. Department of Transportation, and U.S. Department of Agriculture (USDOE)	Aim to produce 3 billion gallons per year of domestic sustainable available fuel (SAF) by 2030, equivalent to 35 billion gallons of SAF to satisfy 100 percent of the domestic aviation fuel demand by 2050.

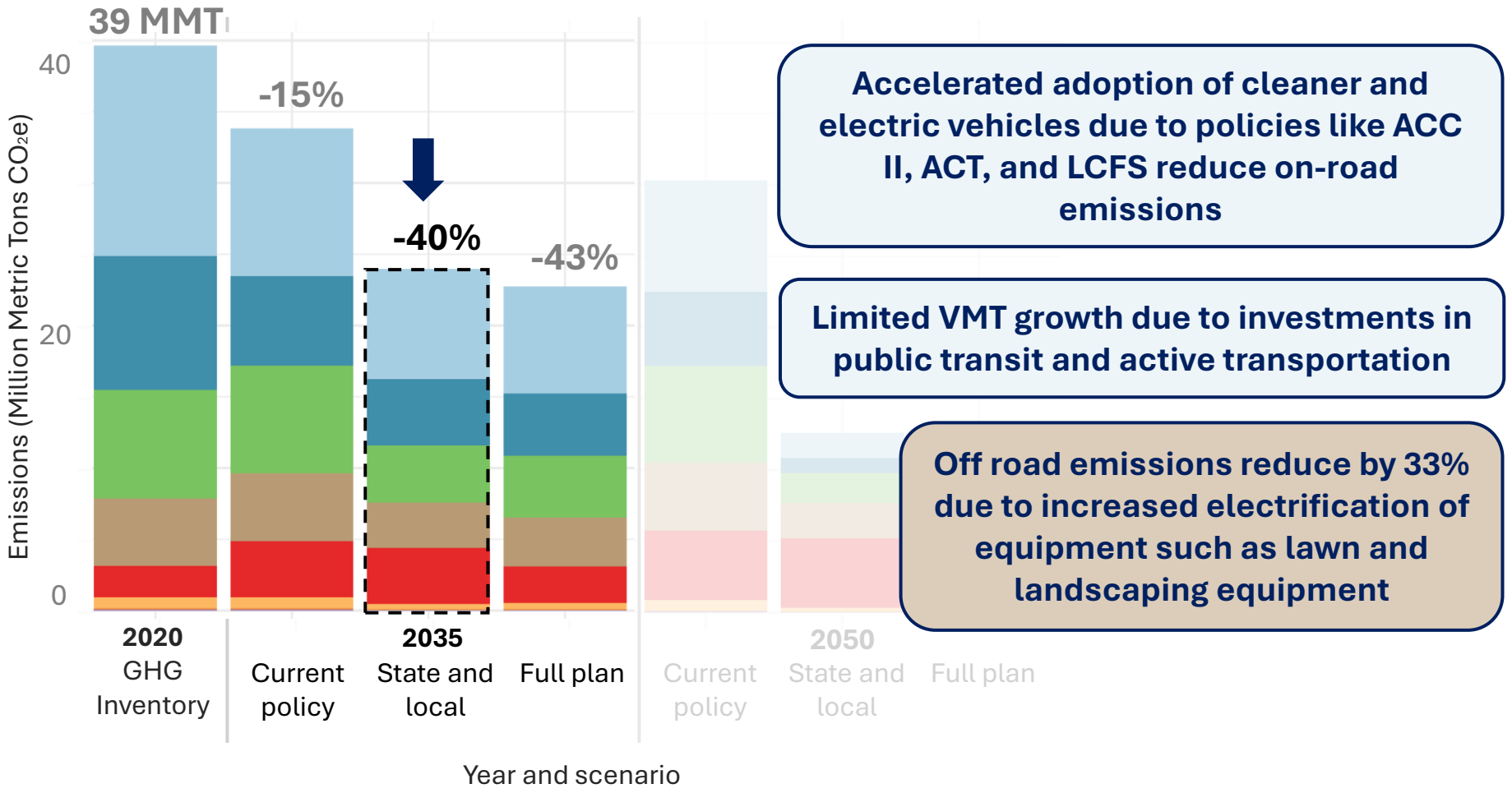
Transportation sector: 2035

Current policy



Transportation sector: 2035

State and local portion



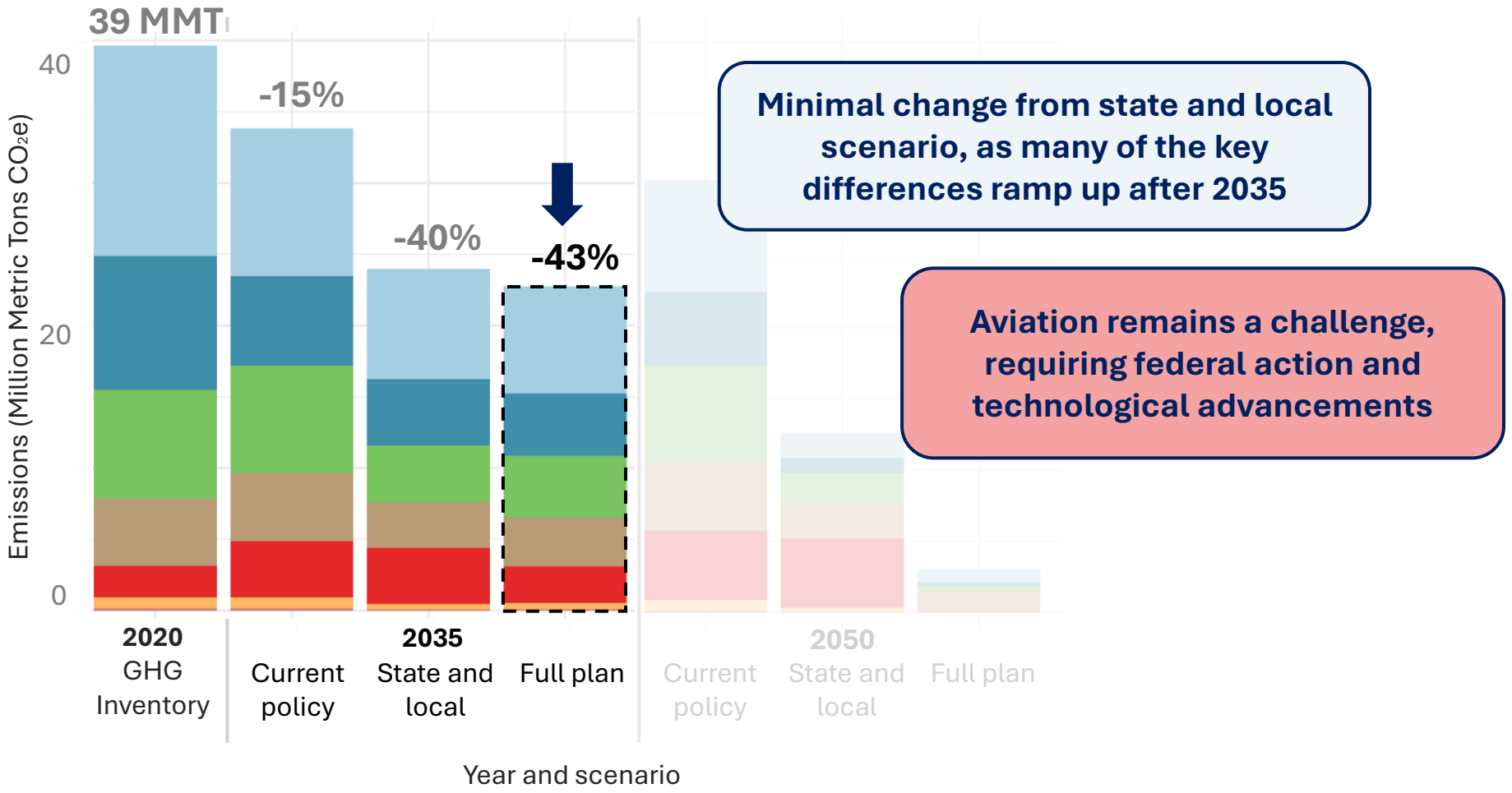
Accelerated adoption of cleaner and electric vehicles due to policies like ACC II, ACT, and LCFS reduce on-road emissions

Limited VMT growth due to investments in public transit and active transportation

Off road emissions reduce by 33% due to increased electrification of equipment such as lawn and landscaping equipment

Transportation sector: 2035

Full plan implementation



Minimal change from state and local scenario, as many of the key differences ramp up after 2035

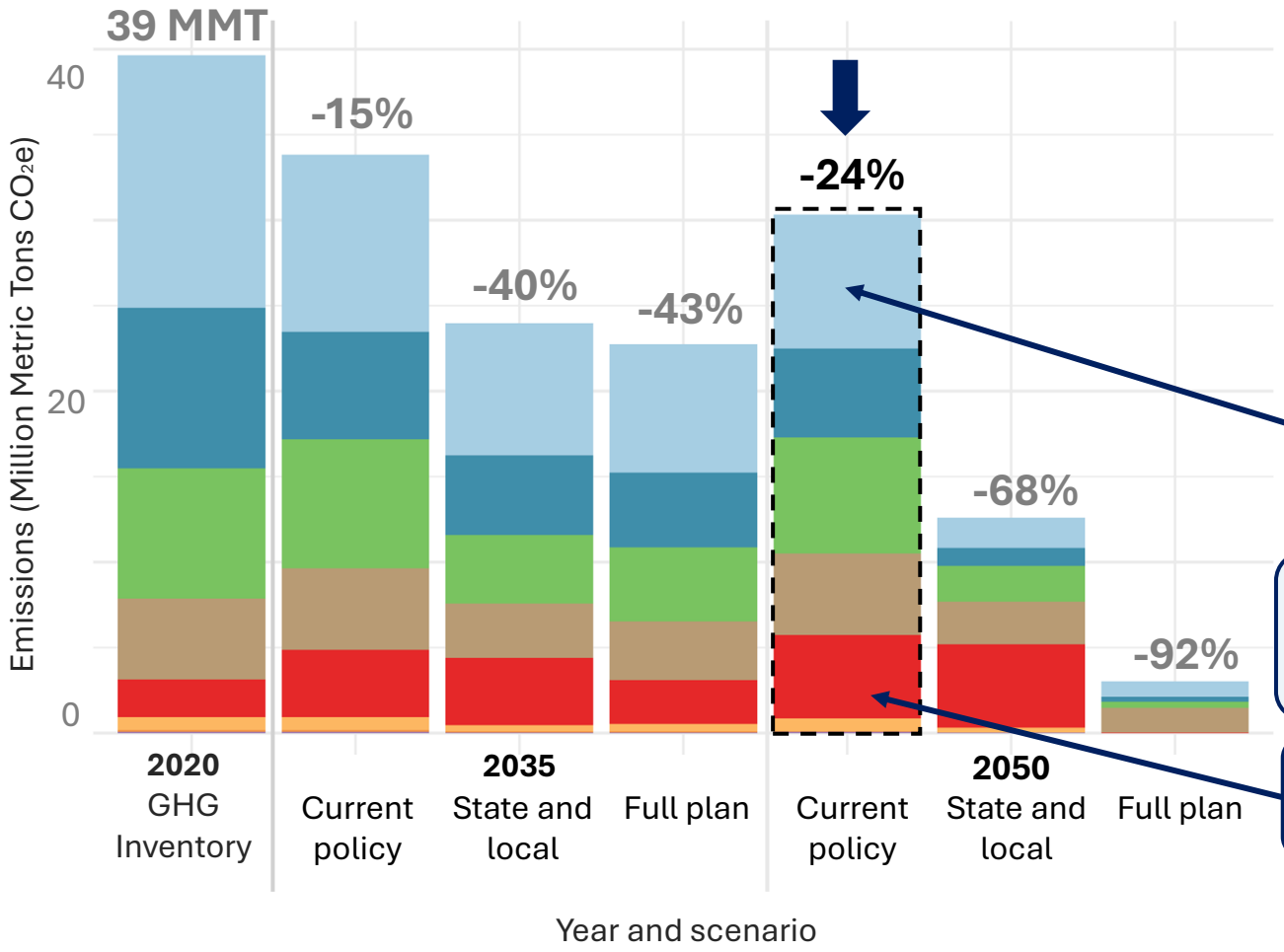
Aviation remains a challenge, requiring federal action and technological advancements

Subsector

- Passenger Trucks
- Passenger Cars
- Freight Trucks
- Off Road
- Aviation
- Rail
- Buses
- Marine

Transportation sector: 2050

Current policy



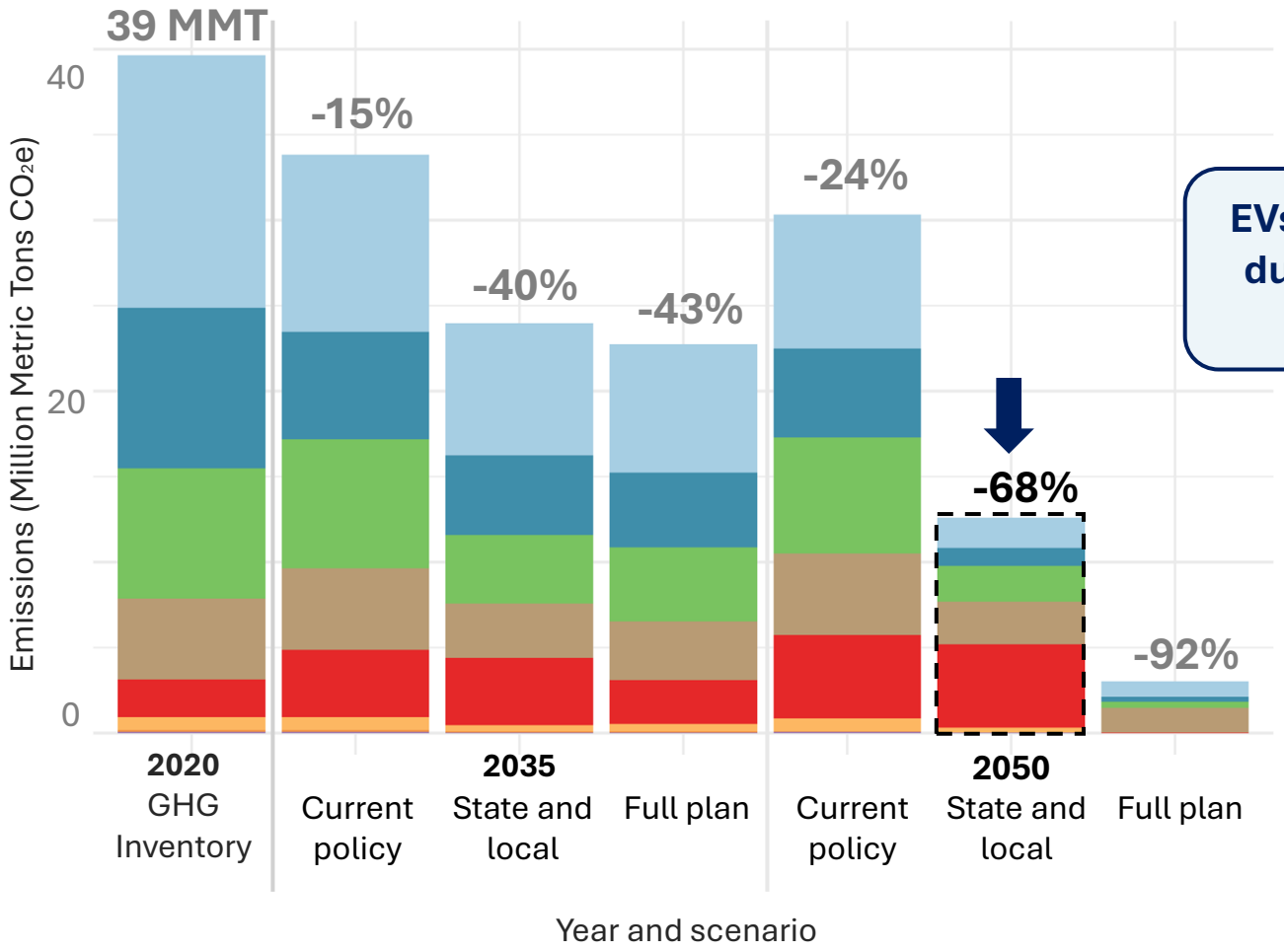
Federal fuel economy and emissions standards level off by 2032, and IRA EV tax credits expire, causing stagnating declines between 2035 and 2050

20% VMT growth between 2020 and 2050 offsets emissions reduction gains from cleaner vehicles

Aviation emissions remain unabated

Transportation sector: 2050

State and local portion



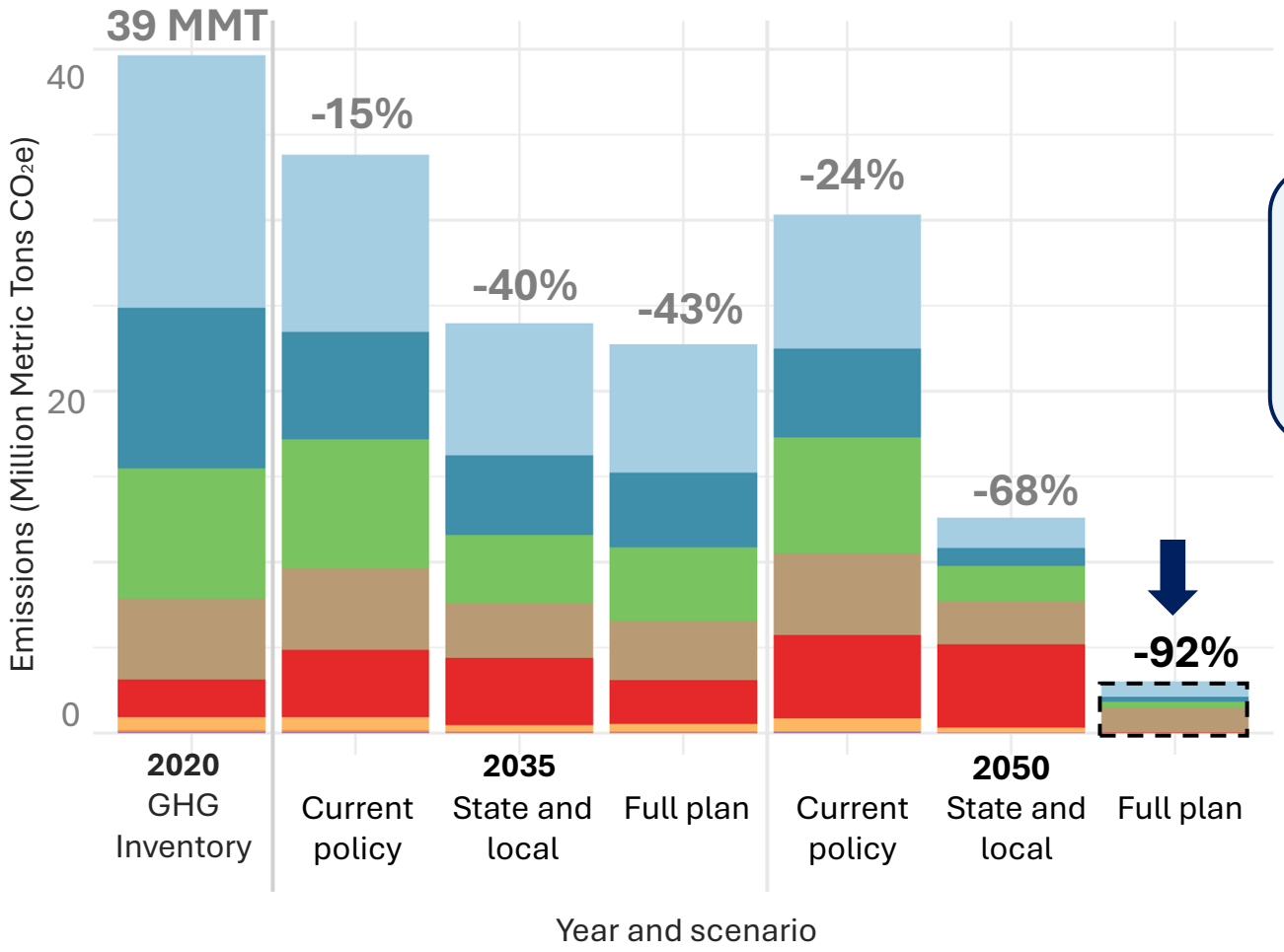
EVs are projected to comprise 75% of the light-duty fleet, with an additional 19% made up of plug-in hybrid vehicles

VMT growth is limited to 4% with an 11% decline in VMT per capita

53% of the medium and heavy-duty truck fleet will be electrified, and 62% of new truck sales will be electric

Transportation sector: 2050

Full plan implementation



An increasing share of new vehicle sales are fully electric rather than plug-in hybrid. EVs making up 88% of the light-duty vehicle fleet by 2050, equivalent to 11 million EVs sold between 2026 and 2050

Aviation emissions reduce due to the full transition to sustainable fuel and technological advancements

Residual emissions are primarily from hard-to-electrify off-road vehicles and equipment

Key takeaways

- Passenger cars and trucks are the largest source of transportation emissions; freight truck emissions are also significant, and harder to decarbonize
- Reaching 100% electric sales by 2035 is critical to meeting our 2050 decarbonization goals, and fleets need to turnover quicker.
- Emissions reductions through electrification and avoided VMT growth can mostly be achieved through state and local action
- Federal action is particularly critical for aviation emissions
- Some off-road emissions remain in 2050, even with full plan implementation

Key takeaways

Measure	Maximum sales/implementation rate	Year implementation would need to occur	2050 stock share based on plan implementation scenario
Increase annual sales share for electric light duty-vehicles	100% of new sales	2035	88% of vehicle fleet
Increase annual sales share for electric medium- and heavy-duty vehicles	100% of new sales	2040	75% of vehicle fleet
Electrification of off-road vehicles, reflected by shifts in gasoline and diesel demand	Lawn and landscaping: 100% of new sales	2035	37% of off-road fuel consumption is electrified
Electrification of transit buses	100% adoption	2040	100% of transit bus fleet (starting in 2040)

Key takeaways (cont.)

Measure	Maximum sales/implementation rate	Year implementation would need to occur	2050 stock share based on plan implementation scenario
Electrification of marine vessels	100% shore power requirement	2030	32% of marine fuel electrified
Shifts in renewable/ synthetic fuel blend demand for MHDV transportation modes and equipment	Low Carbon Fuel Standard (LCFS): fuel consumed is 22% less carbon intensive than 2022	2034	N/A
Reduce VMT per capita by vehicle class	CMAP region: 2% increase in VMT NIRPC region: 20% increase in VMT	2050	CMAP region: 12% decrease in VMT per capita NIRPC region: 3% increase in VMT per capita

Questions?

Discussion

Implementation discussion questions

- What steps are needed to implement the policy/program?
- What barriers exist and how can we overcome them?
- Who is critical to implement the policy/program and what could motivate them?

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Next Steps

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Climate questionnaire is live!

Seeking public input on how climate change affects their daily lives:

https://www.surveymonkey.com/r/cmapccap (English)

https://www.surveymonkey.com/r/cmapccap?lang=es (Spanish)

Partner social media toolkit

https://content.govdelivery.com/landing_pages/52434/a591db05000064e750490caf24d9145f

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Look ahead: Five months to go!

Summer

- Incorporate feedback on transportation sector results, as appropriate
- Vet initial modeling results with other working groups & stakeholders
- Vet benefits analysis with equity working group
- Conduct public engagement (questionnaire, workshops)
- Finalize all modeling and analysis with steering committee

Fall

- Present draft plan to steering committee

TWG member role

- Help promote questionnaire
- Continue to lend expertise, as appropriate
- Attend steering committee meetings, if interested

Thank you

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