



What Would it Take?

Transportation and Climate Change in the National Capital Region

Final Results

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Presentation to the TPB

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Why “What Would it Take”?

background

baseline

analysis

results

conclusions

1

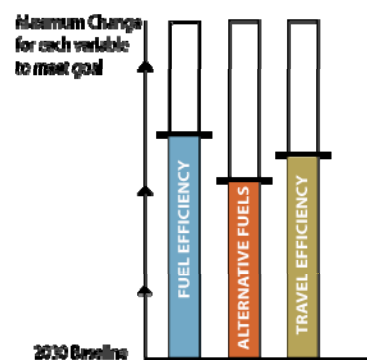


Build off regional climate action momentum

2

Support local jurisdictions by identifying **effective, cost-effective, and feasible** strategies to adopt

3



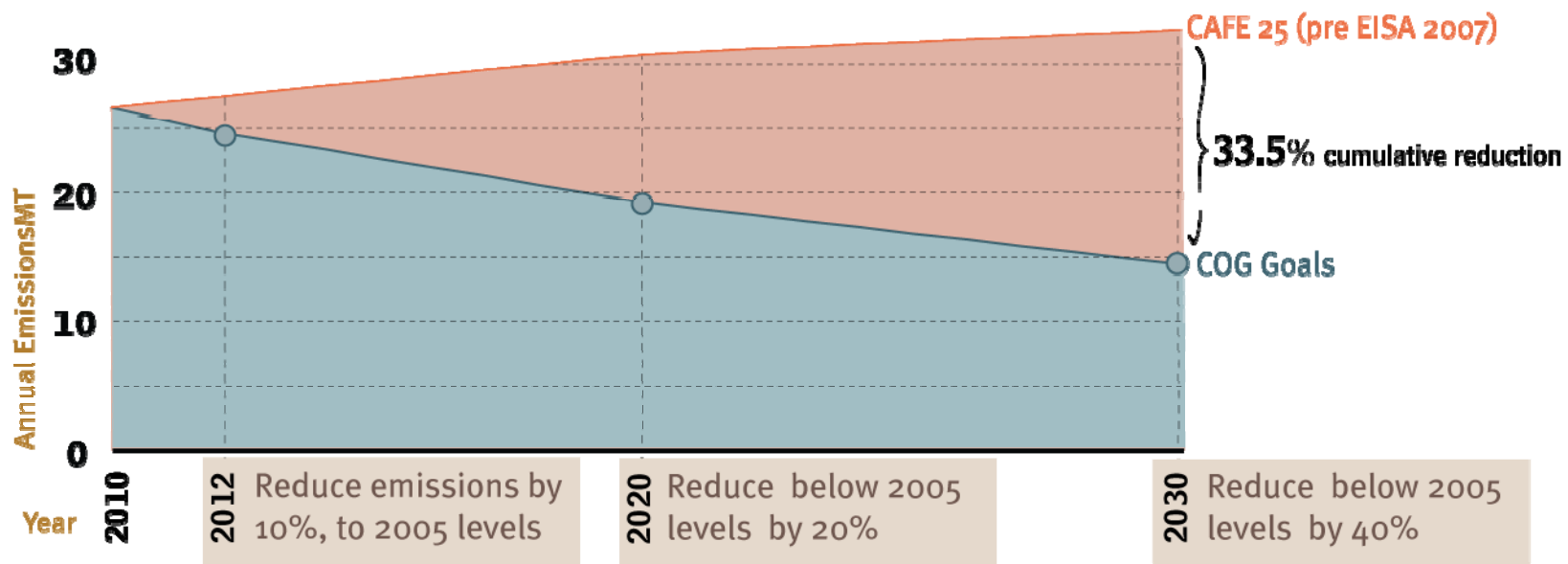
Determine the **type and scale of transportation strategies** necessary to meet regional goals



What Would it Take?

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What if we had to meet these regional goals in the transportation sector?





Scenario Development

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- 1 Inventory and baseline forecast:** regional travel demand model, Mobile 6.2, and off-model analysis
- 2 Identified strategies**
- 3 Individual strategy analysis:** sketch planning analysis, assumptions based on similar regional experiences/data
- 4 Grouped strategies:** all regional strategies assumed to be additive (further study needed on this)



What's Our GHG Baseline?

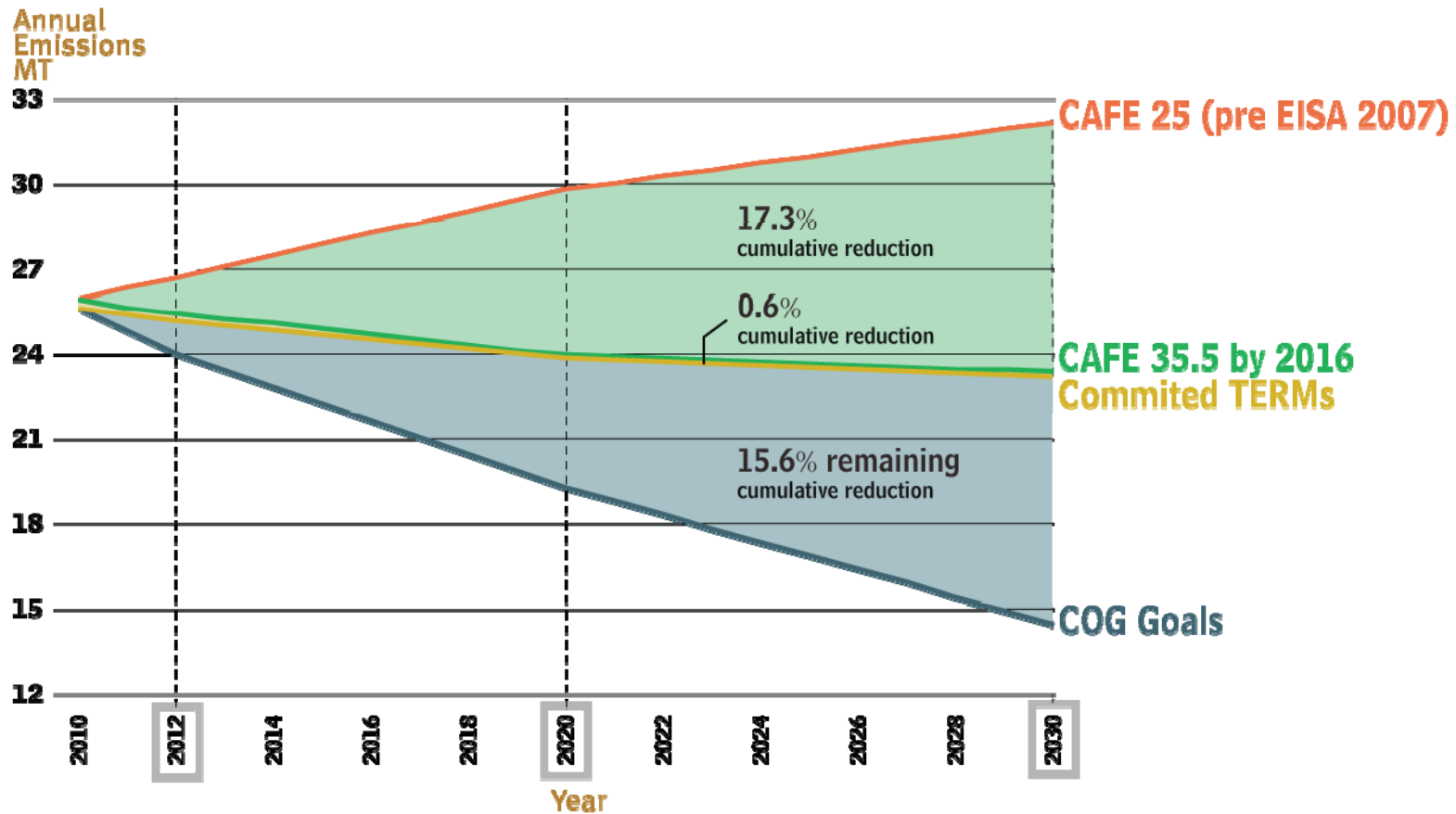
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Committed TERMS refers to the full TERM Tracking Sheet, including: Access and service improvements to transit, bike/ped projects, rideshare assistance programs, telecommute programs, traffic improvements, engine technology programs

What are the Emissions Sources?

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There are **3** major areas affecting transportation emissions

1



The composition of the fleet

fuel efficiency, heavy/light duty split

2



The fuel we put in our fleet

gasoline, diesel, alternative fuels (electricity, ethanol, biofuels)

3



How we use our fleet

trip lengths, purpose, and mode, vehicle occupancy, congestion



What Does Our Fleet Look Like?

background

baseline

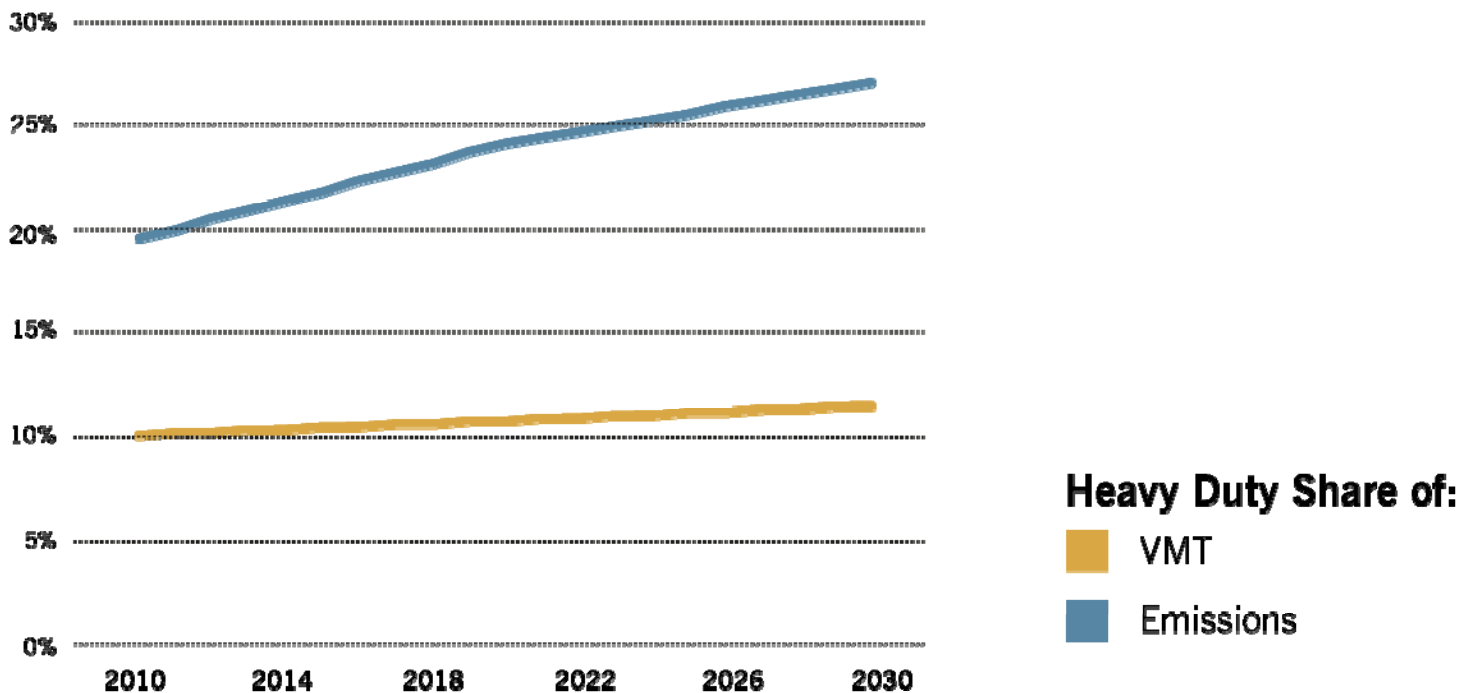
analysis

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Trucks account for a growing share of CO₂ emissions

Heavy Duty Share of Total VMT and CO₂ Emissions



What's Our Fuel Mix?

background

baseline

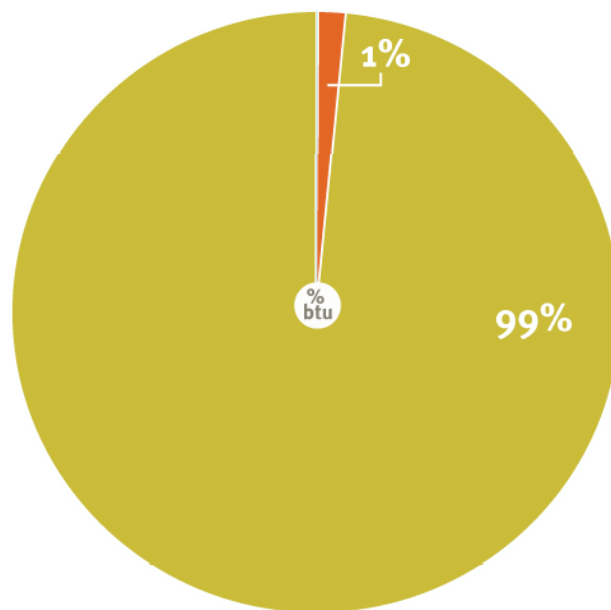
analysis

results

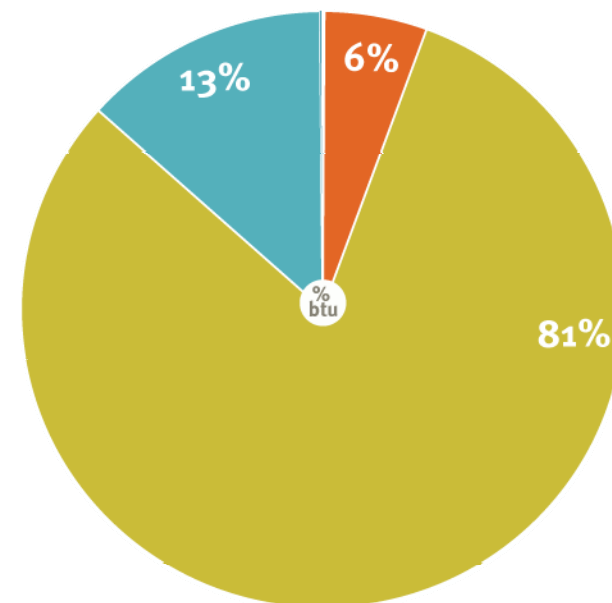
conclusions

There is a lot of room for increasing alternative fuel use
National Light Duty Fuel Mix

Existing, 2009



DOE Forecast, 2030



Source: US DOE, EIA,
Annual Energy
Outlook (AEO) 2009

How Do We Use The Fleet?



background

baseline

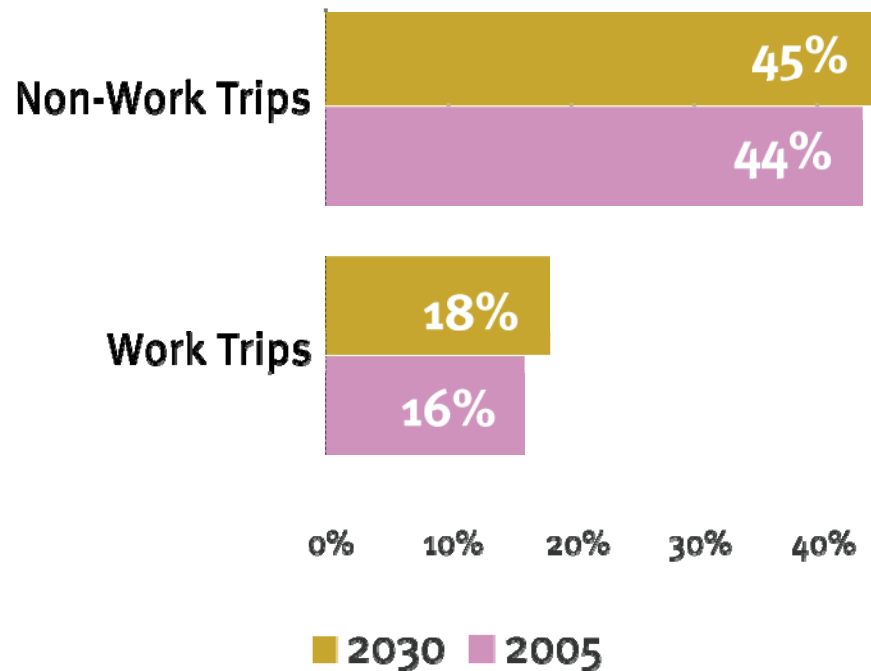
analysis

results

conclusions

Many of our trips are short.

% of Auto Trips <3 miles



How Do We Use The Fleet?



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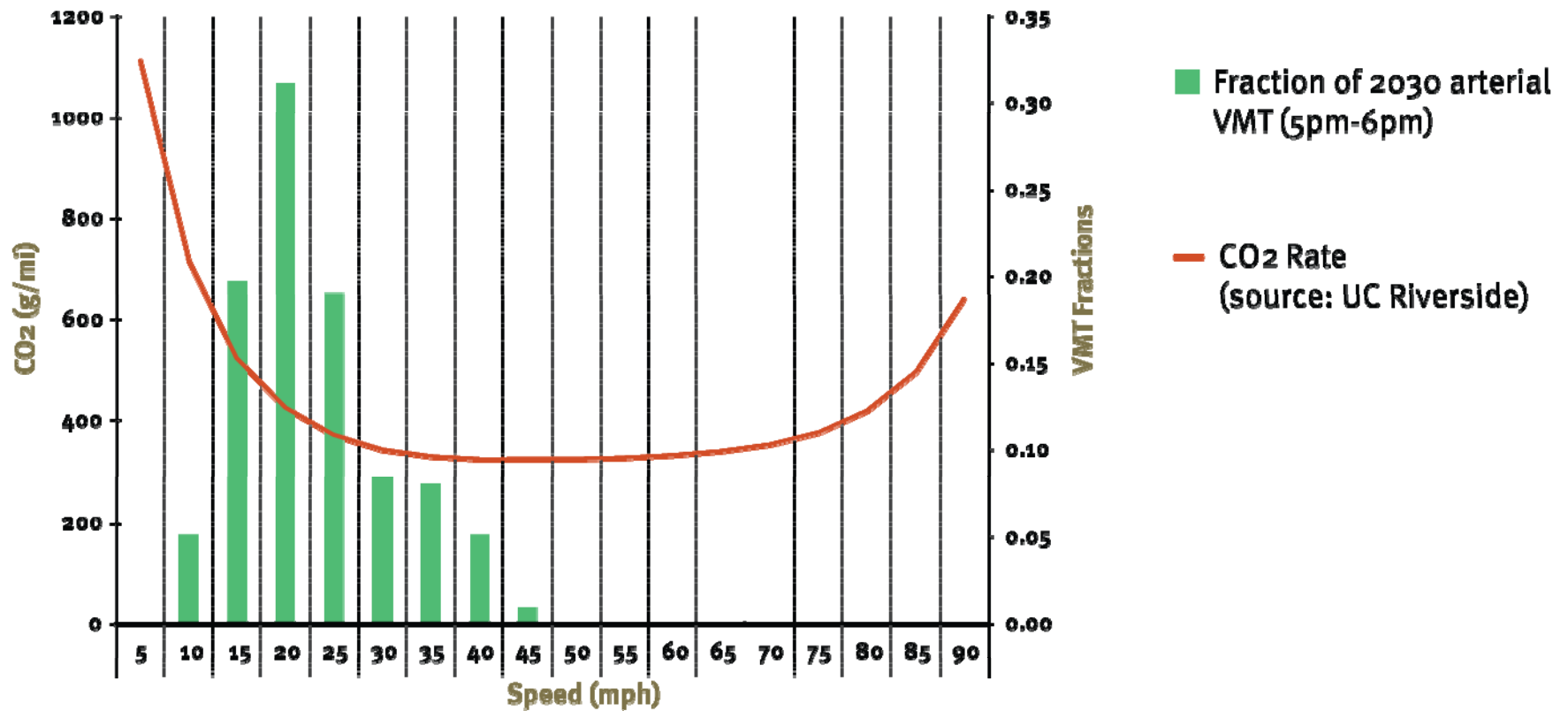
baseline

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conclusions

Congestion affects CO₂ emissions and is widespread.



How Can We Reduce CO₂?



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1 fuel efficiency



Enhanced CAFE
HDV CAFE
Local tax incentives
Cash for Clunkers

2 alternative fuel



DOE Forecasts:
Current regulation
High price case

3 travel efficiency



Telecommuting
Bike/ped facilities
Improved transit
Eco-driving
Pricing
Incident Management
Signal optimization
Bike and Car-sharing
Commuter services

Sources for Specific Strategies



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- 1** COG Climate Change Report
- 2** Transportation Emissions Reduction Measures (TERMs)
- 3** Potential TERMS Report
- 4** TPB Initiatives (e.g. CLRP Aspirations Scenario, TIGER)
- 5** Other Federal/State/Local Sources

Analyzing Individual Strategies

background

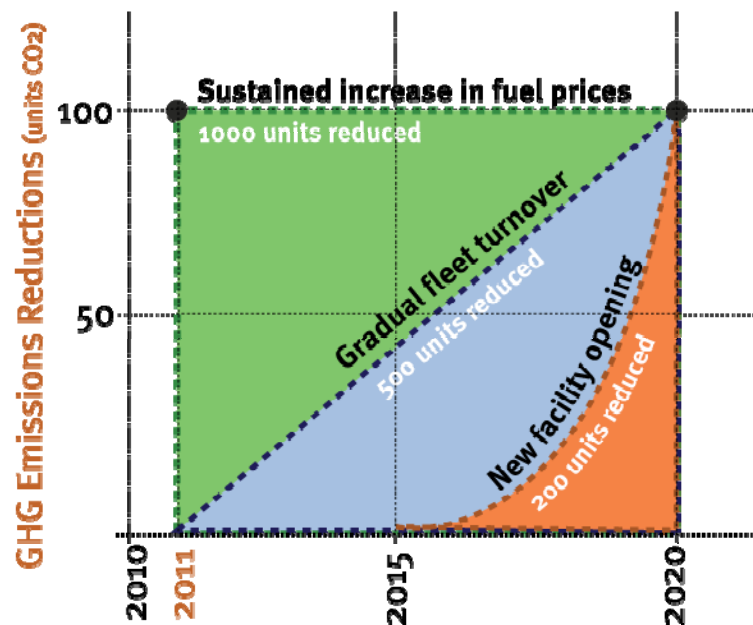
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- 1 Effectiveness, Cost-effectiveness, Timeframe
- 2 GHGs analyzed **cumulatively** over time



Combinations of Strategies



background

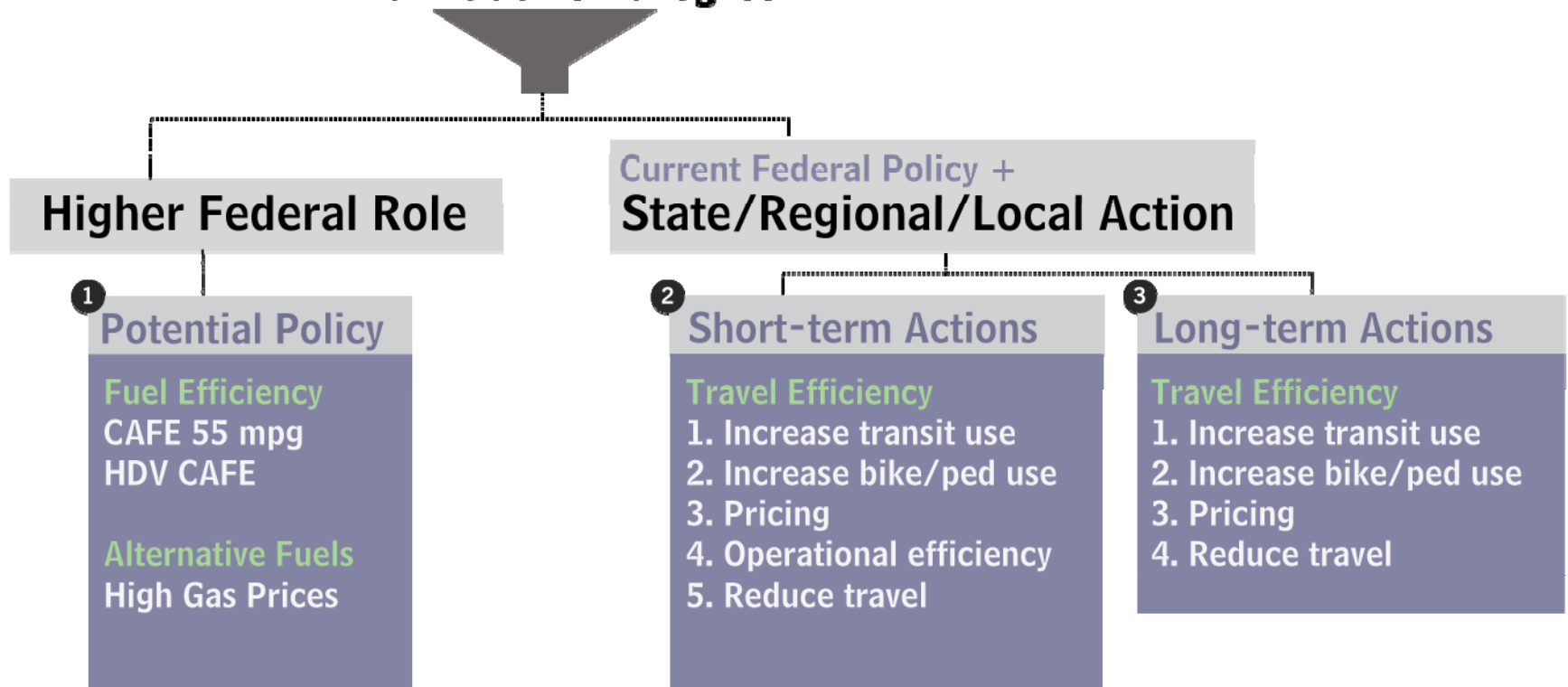
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Individual Strategies



All groups combine additive strategies to the full extent currently possible.

Higher Federal Role



background

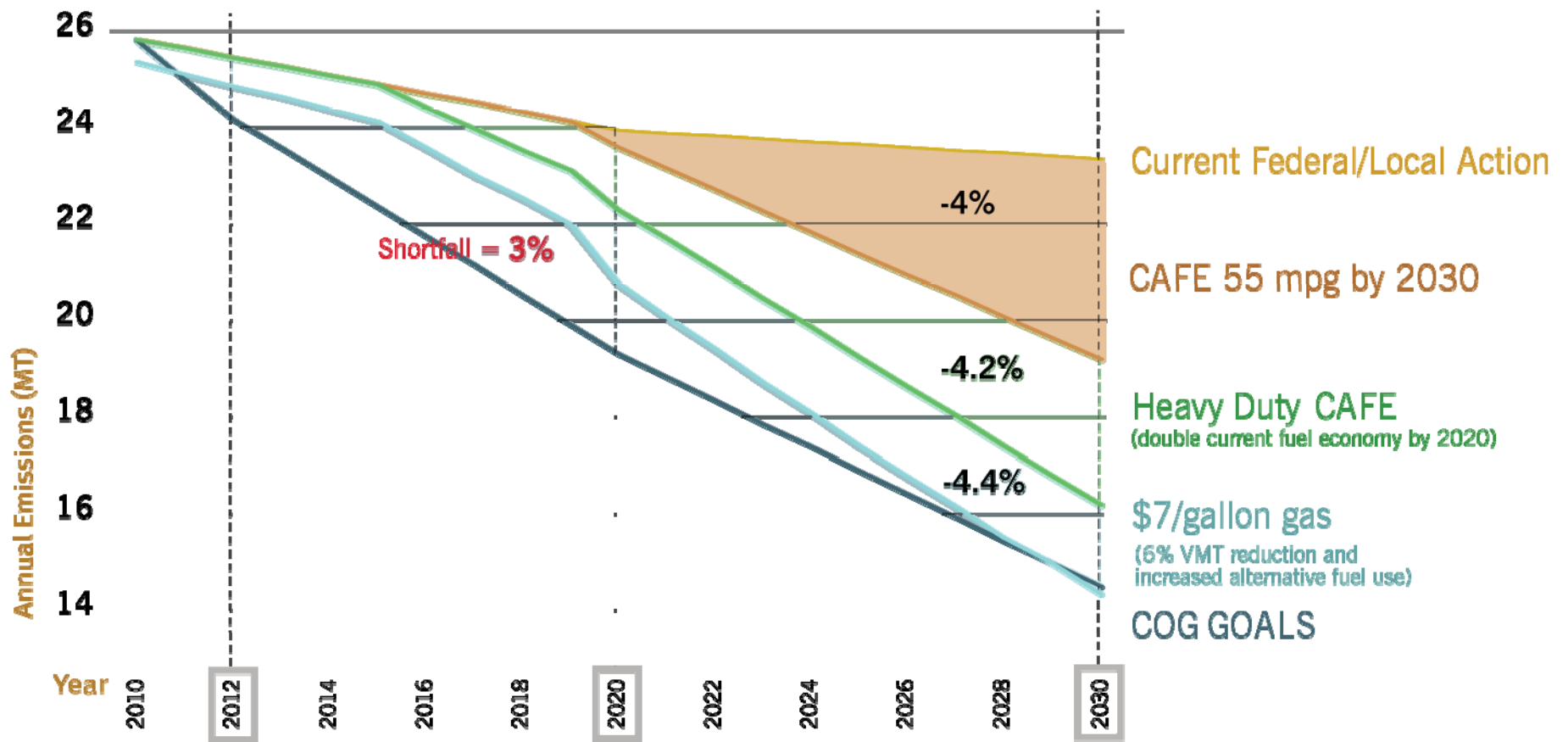
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Aggressive federal measures *almost* get us there.



Current Federal Policy



background

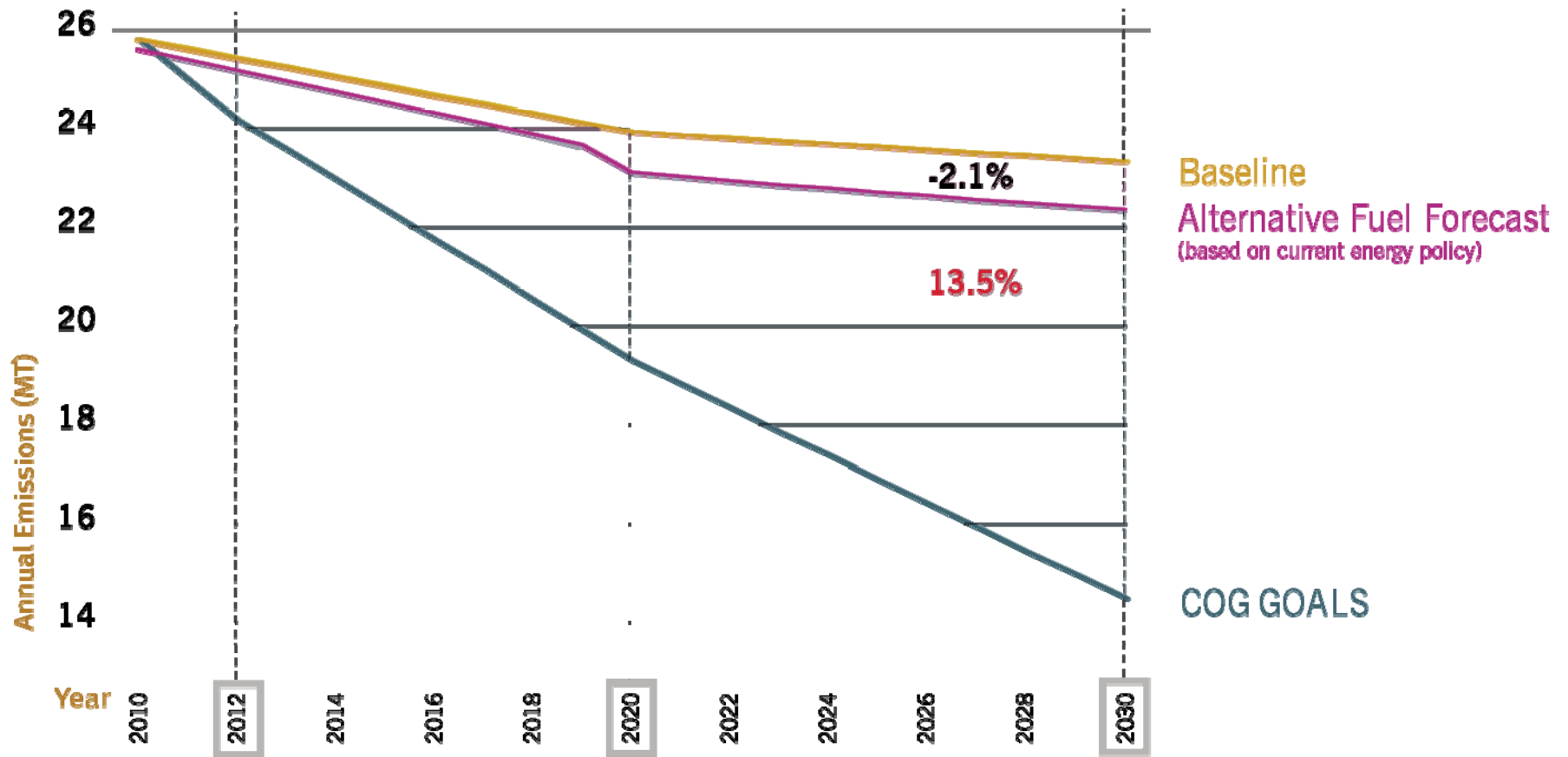
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We still have a long way to go based on current action.



Short-term Strategies



background

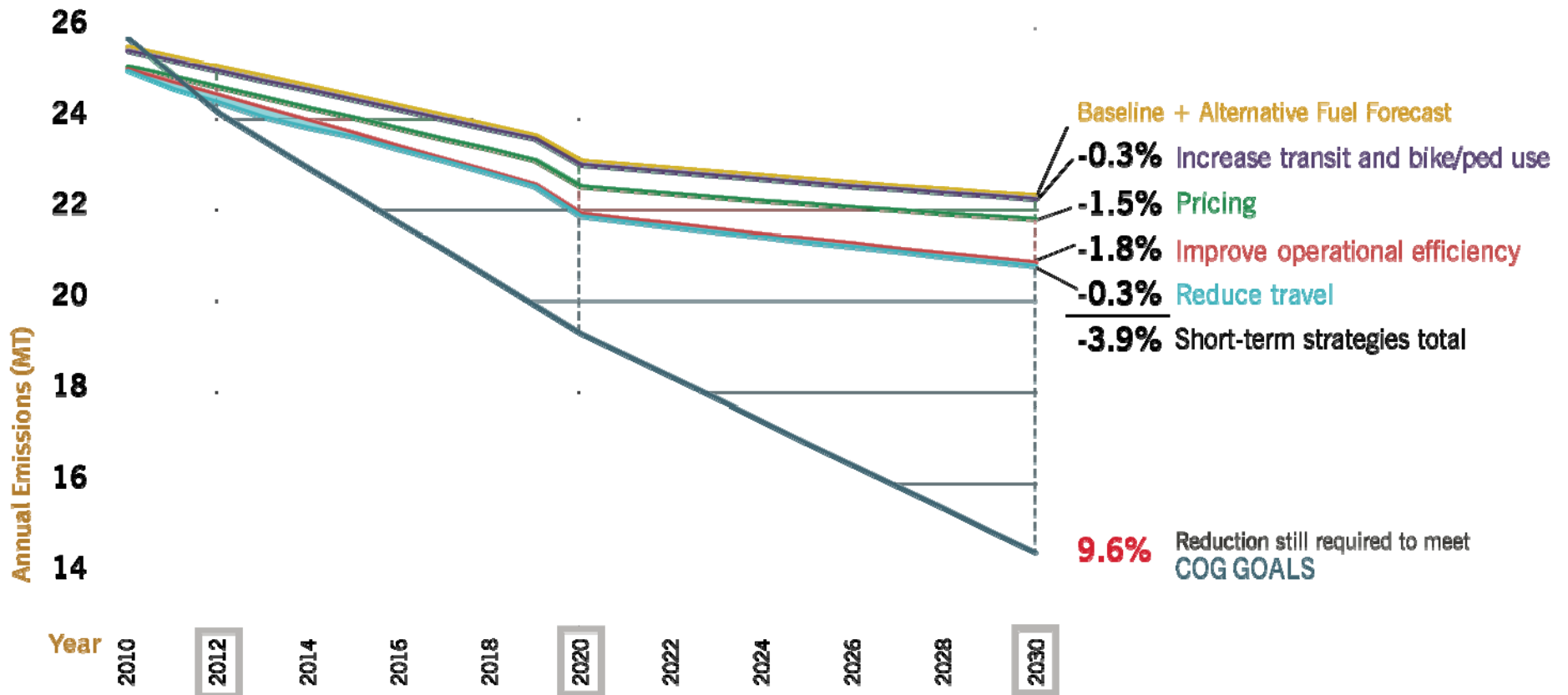
baseline

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Many strategies can be done soon, almost meeting early goals.

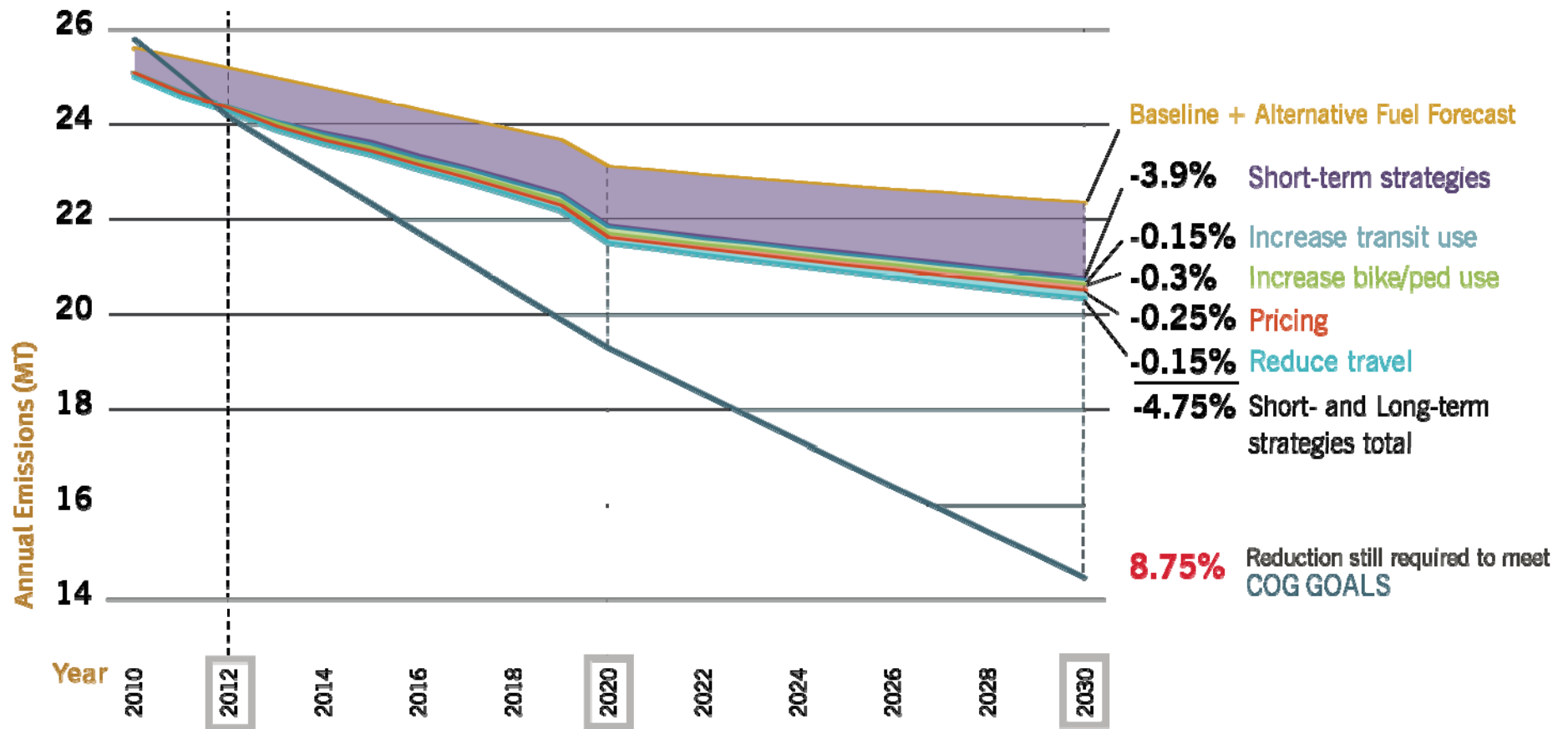


Longer-term Strategies



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- baseline
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A longer study timeframe for long-term impacts would help.



Cost-Effectiveness



background

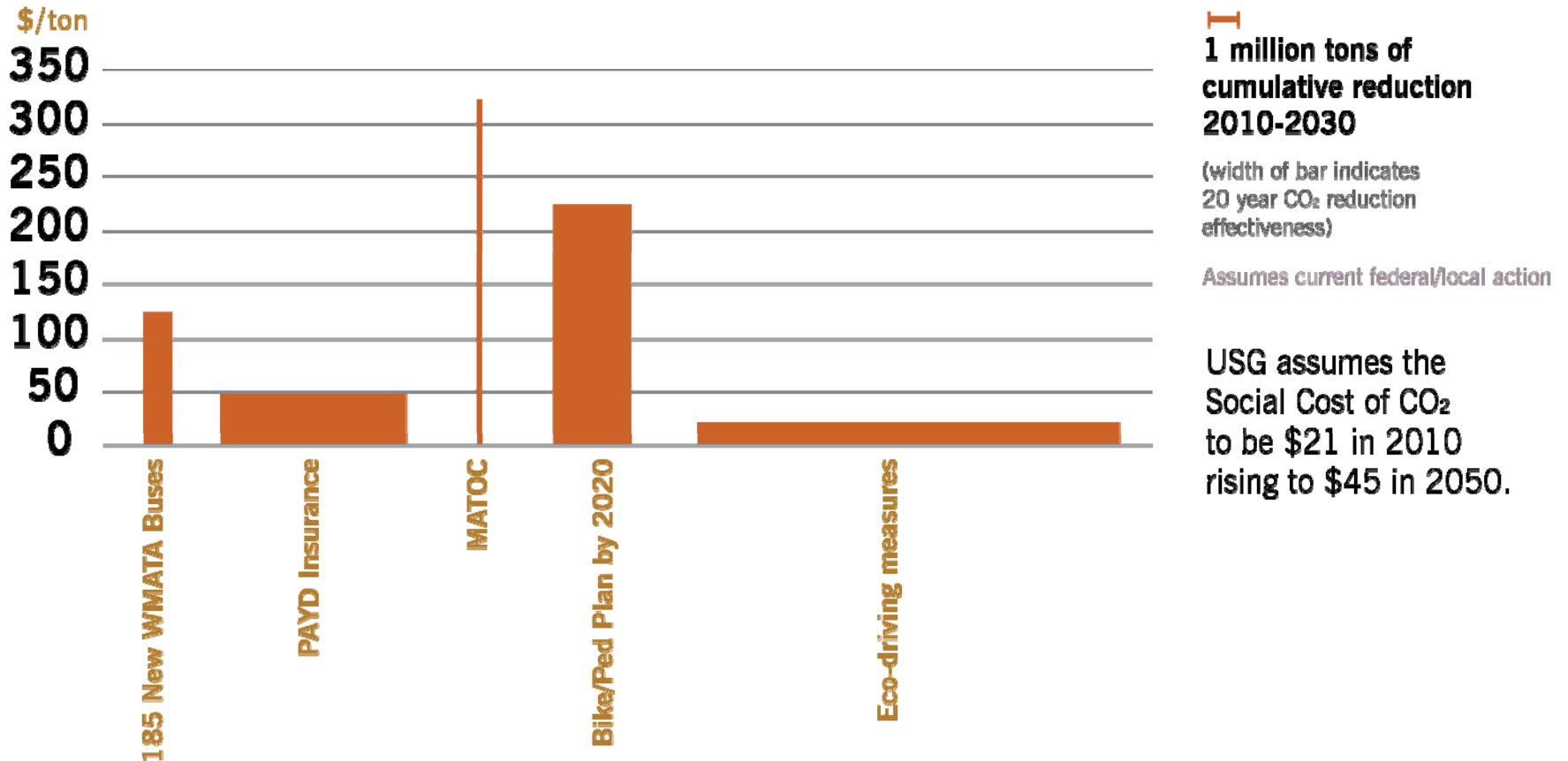
baseline

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Several strategies are both cost-effective and highly effective.



Next Step: Cost Benefit Analysis



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EXAMPLE

Bike-sharing

Modest CO₂ benefits are a contributing factor to large overall benefits.



Costs	\$231,000,000
Capital	\$16,000,000
Operating	\$75,000,000
Increased Accidents	\$145,000,000
Benefits	\$625,500,000
User Cost Savings	\$197,000,000
Travel Time Savings	\$378,000,000
Reduced Accidents (from reduced VMT)	\$1,300,000
Public Health	\$2,000,000
Increased Access	\$38,000,000
Congestion Reduction	\$3,500,000
Environmental Benefits	\$5,700,000
CO₂	66,000 tons

All numbers over 20 year horizon from 2010-2030



What Would it Take?

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- 1** Strategies analyzed to date do not achieve regional goals—**additional strategies can and should be analyzed.**
- 2** Goals are difficult to meet--and will require reductions in **all 3 categories**
- 3** While major reductions can come from federal energy policies, **local governments can make significant reductions quickly**
- 4** Some strategies may not have major GHG reduction potential, but have **multiple benefits worth exploring through benefit-cost analysis**



Local Actions to Consider Now I

background

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analysis

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conclusions

Some short-term strategies can be implemented now.

Measure	Example Action	Reduction (% off BAU)
Increase transit use on existing services	Implement kiosks, feeder buses and circulators, real-time bus information, bus priority, free transfers	-0.14%
Increase bike/ped use	Accelerate the completion of the 2030 TPB Bike and Ped Plan to 2020	-0.30%
Increase alternative commute options	Expand telecommuting and increase carpooling and vanpooling (Commuter Connections)	-0.29%
Parking pricing	Implement parking impact fees	-0.66%
Pay-as-you-drive insurance	Work with insurance companies (such as Progressive) to provide PAYD options in this region	-0.70%
Promote eco-driving	Implement regional public education campaigns with messaging on maintenance, fuel-conserving driving behavior, and other eco-driving practices	-1.65%
Improve traffic flow	Continue and expand MATOC and traffic signal optimization	-0.20%



Local Actions to Consider Now II

background

baseline

analysis

results

conclusions

We can begin the initial stages of implementation for some long-term measures.

Measure	Example Action	Reduction (% off BAU)
Smart growth policies	Begin implementing long-term smart growth policies now to encourage future growth in activity centers and around transit	-0.15%
New transit investments	Begin planning major transit expansions, such as the Dulles Rail line.	-0.12%



Local Actions to Consider Now III

background

baseline

analysis

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conclusions

The region could also express support for high pay-off measures that require federal action.

- 1** Heavy duty CAFE
- 2** 55 mpg by 2030 CAFE
- 3** Pricing of carbon-intensive fuels