Diesel Fuel Use Resilience in Oregon

59th Pacific Northwest Regional Economic Conference

May 21, 2025

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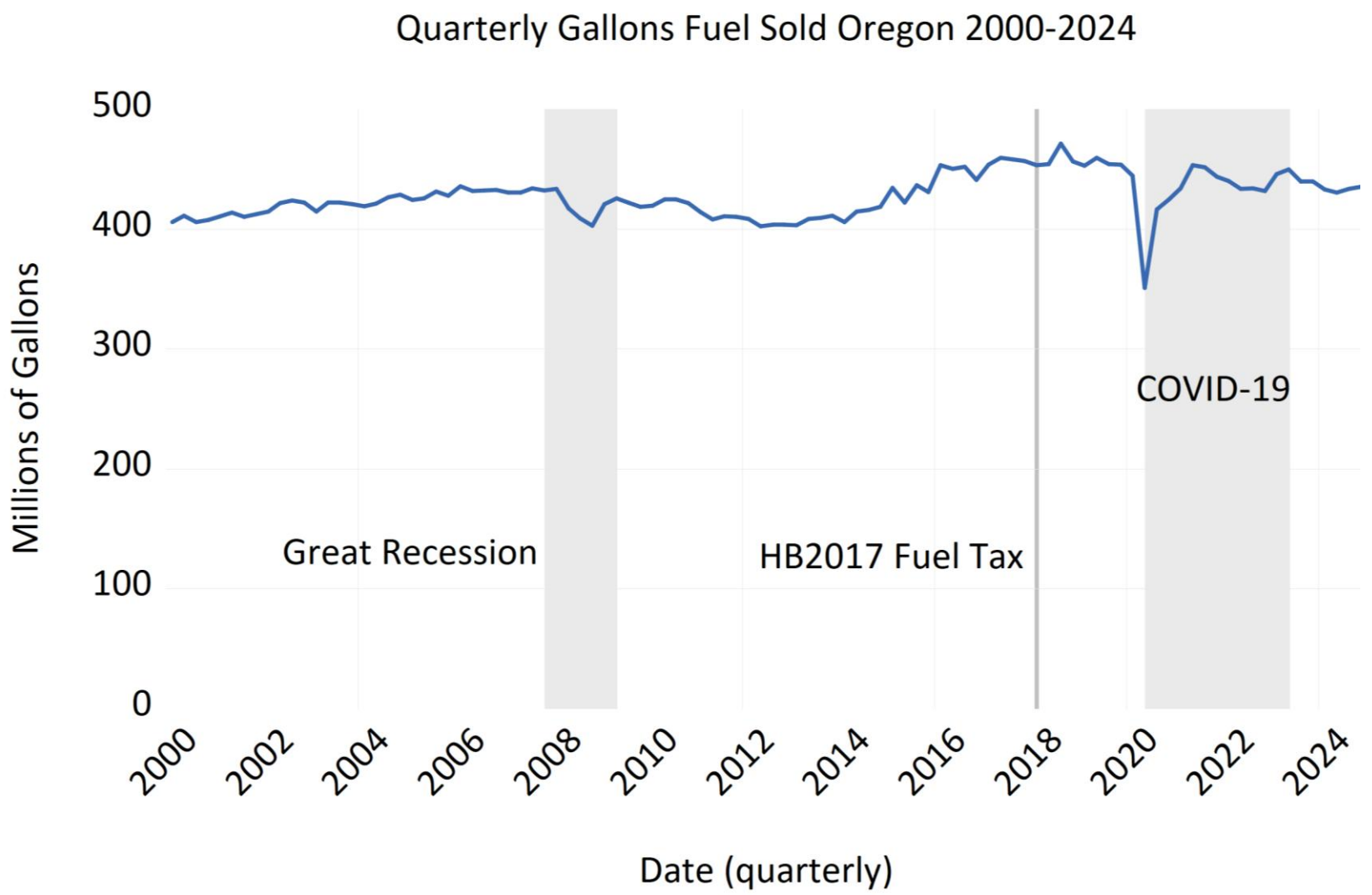
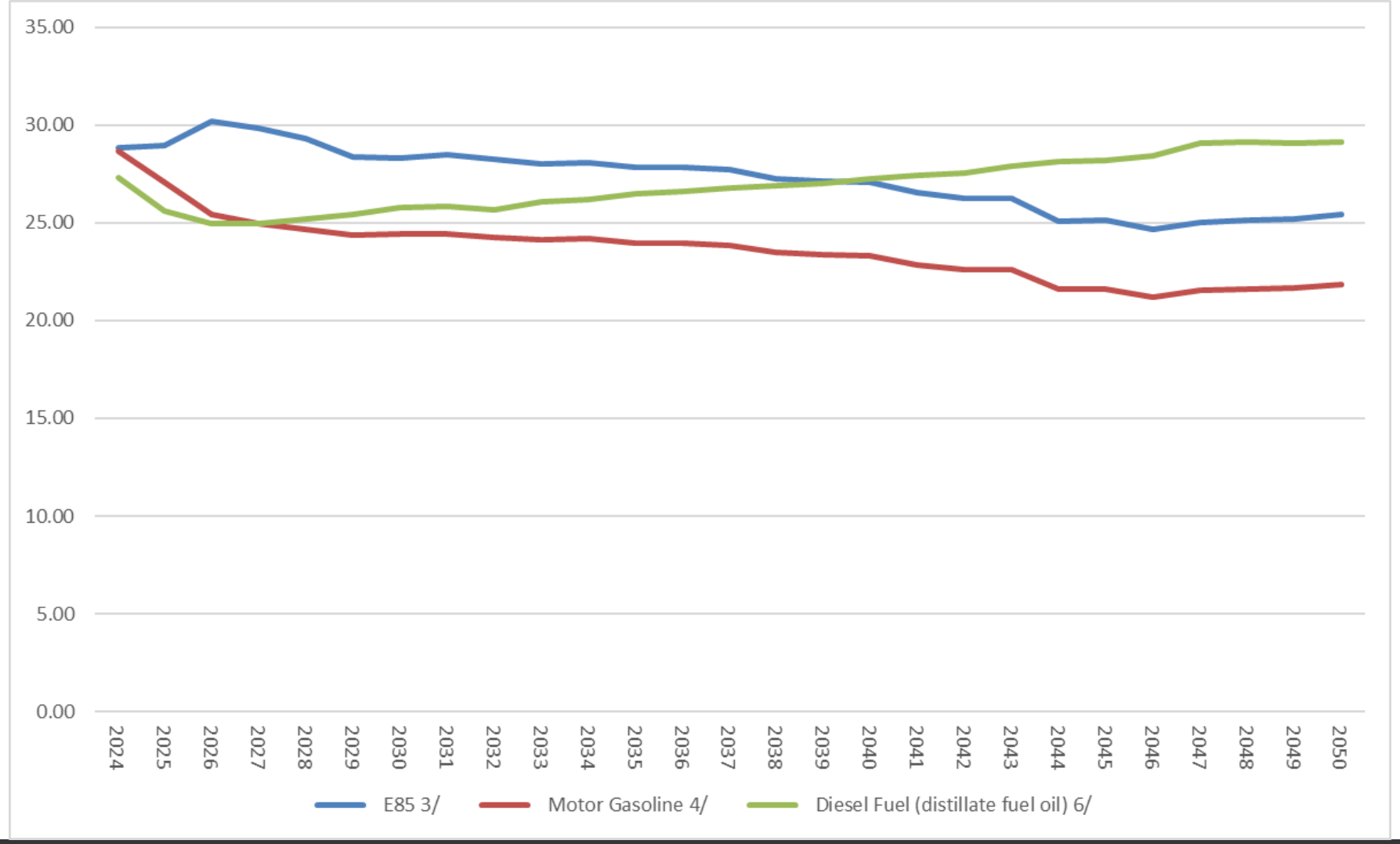
Oregon Department of Transportation



Historical Fuel Sold for Transportation in Oregon



EIA Annual Energy Outlook April 2025 Forecast

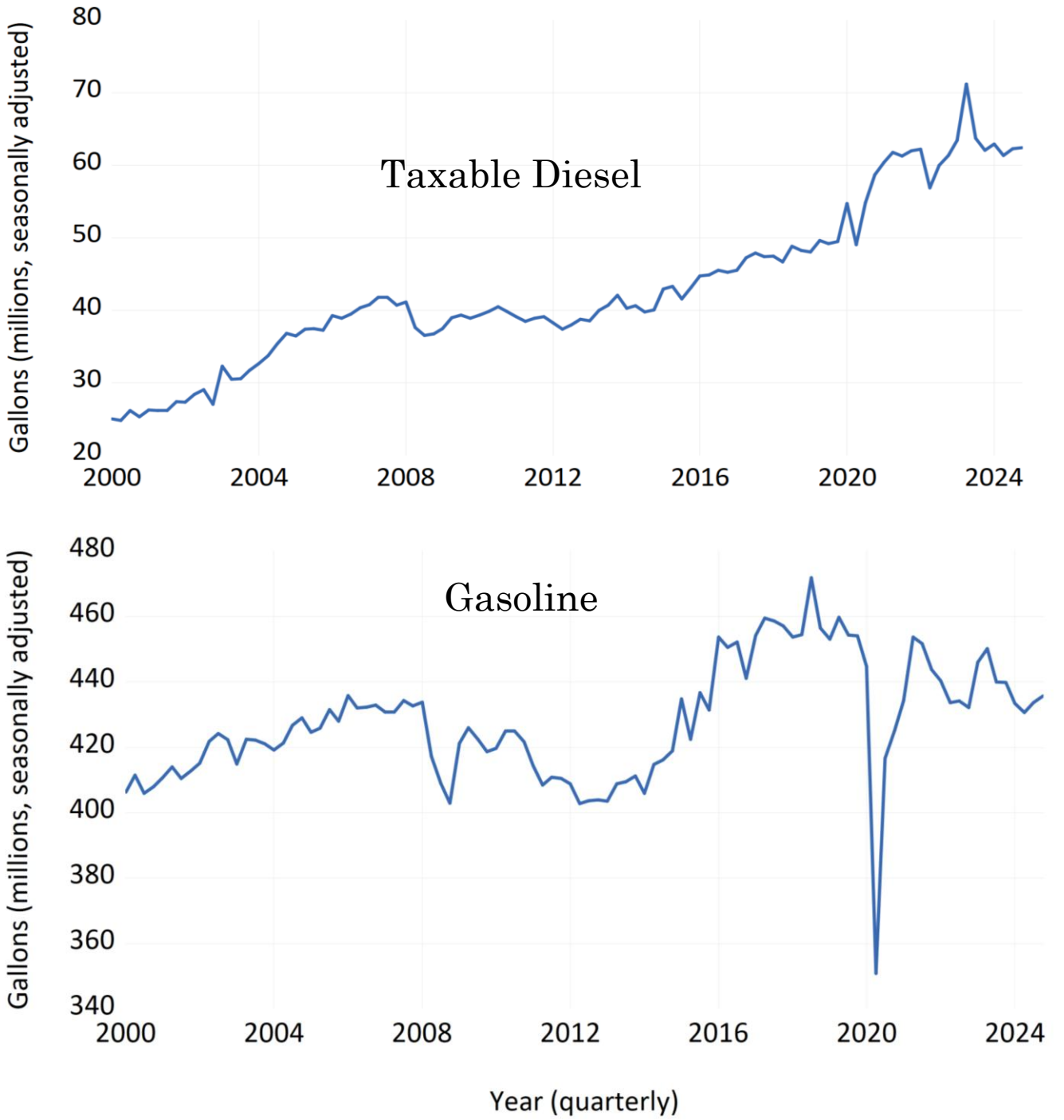
Advanced Clean Cars II and Oregon Policy

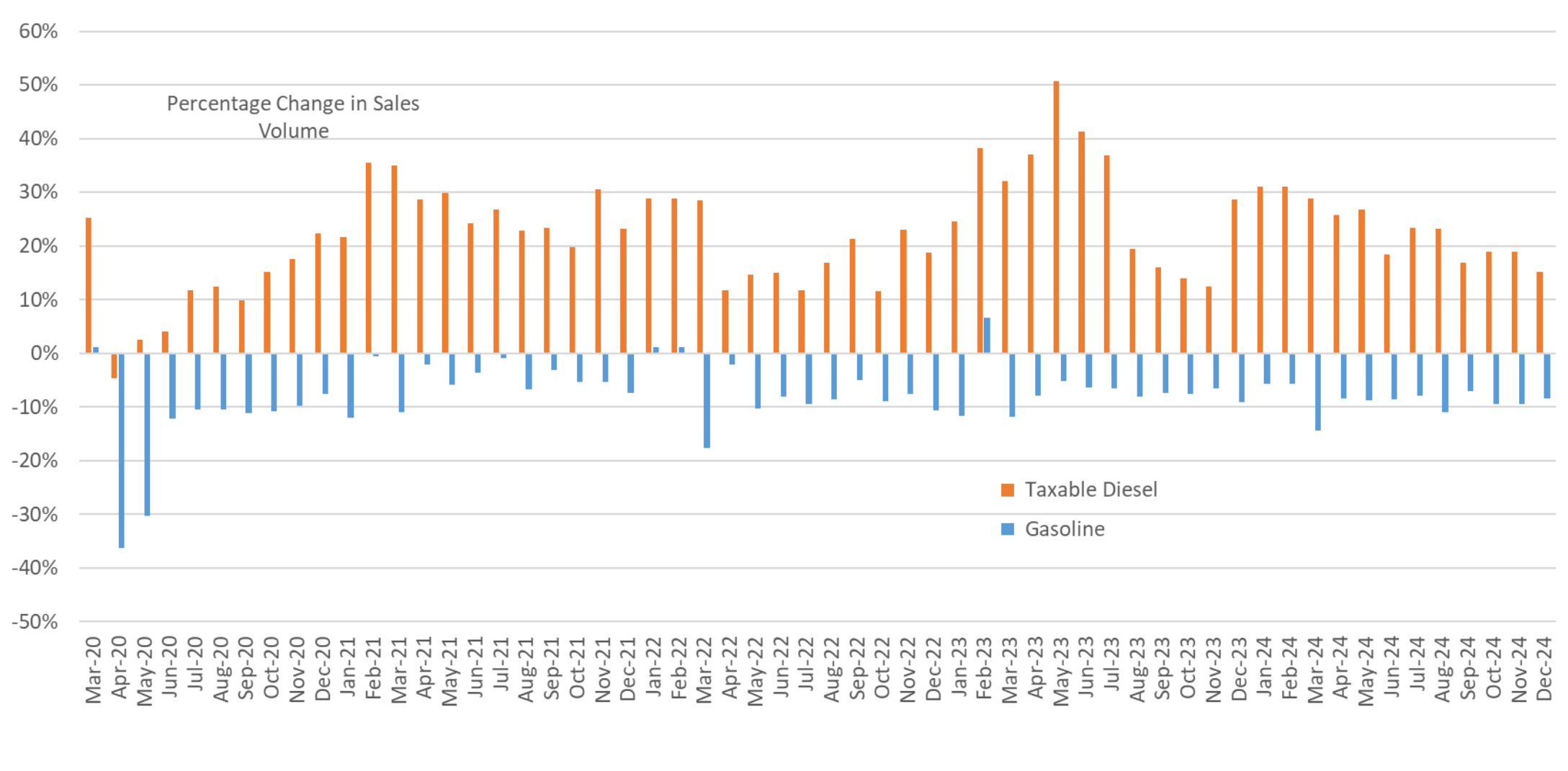
- **Diesel**
  - Only vehicles under 26,000lbs pay fuel tax. More than that, pay weight-mile tax instead.
  - Light duty are vehicles under 14k pounds. Medium heavy are between 14k and 26k pounts
- **Climate Protection Plan's Clean Fuels Program**
  - State rules from Oregon's Department of Environmental Quality carbon intensity from fuels, requires reduction in CARBON INTENSITY from fuels.
  - Price impacts assumed to be limited based on rulemaking language, 20% increase in prices starting 2026.
- **ACC II** (late 2022 rulemaking) will directly impact through adoption of EV's holding VMT constant
  - By 2035, most manufacturers will be required to supply only electric vehicles for sale in Oregon, mostly Light Duty Vehicle sales.

Oregon Clean Fuels Program Goals

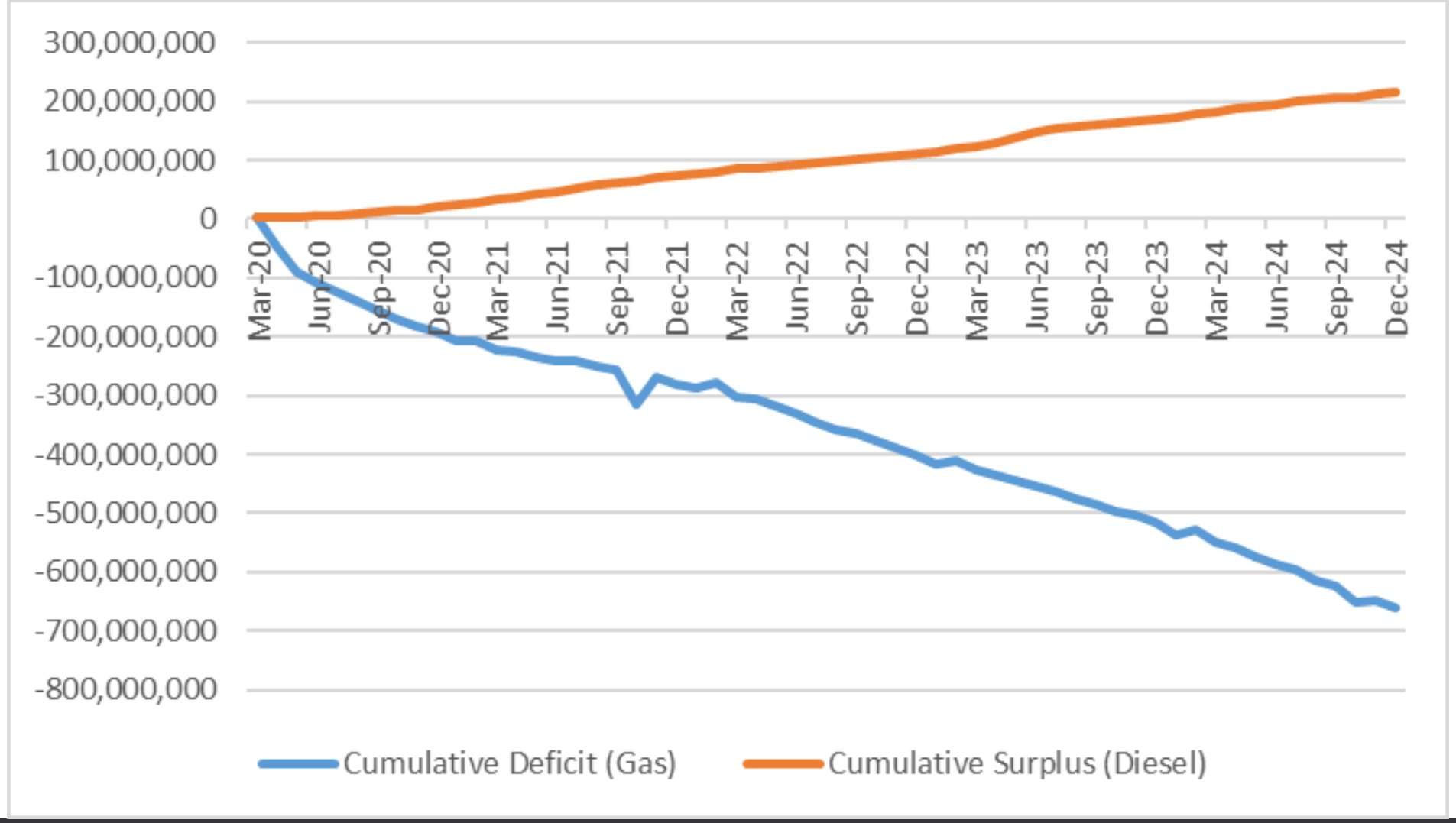
Background: Fuels Taxes in Oregon

- Who Pays?
  - All gasoline users
  - Any diesel consumption not covered by weight-mile (mostly, trucks over 26,000 lbs)
- Gas - Diesel Divergence
  - Gas revenues have fallen since COVID
  - Diesel revenues have increased and leveled off
- How much?
  - $0.40/gallon
  - Diesel ~ 15% of fuels revenues, up from 11% pre-COVID

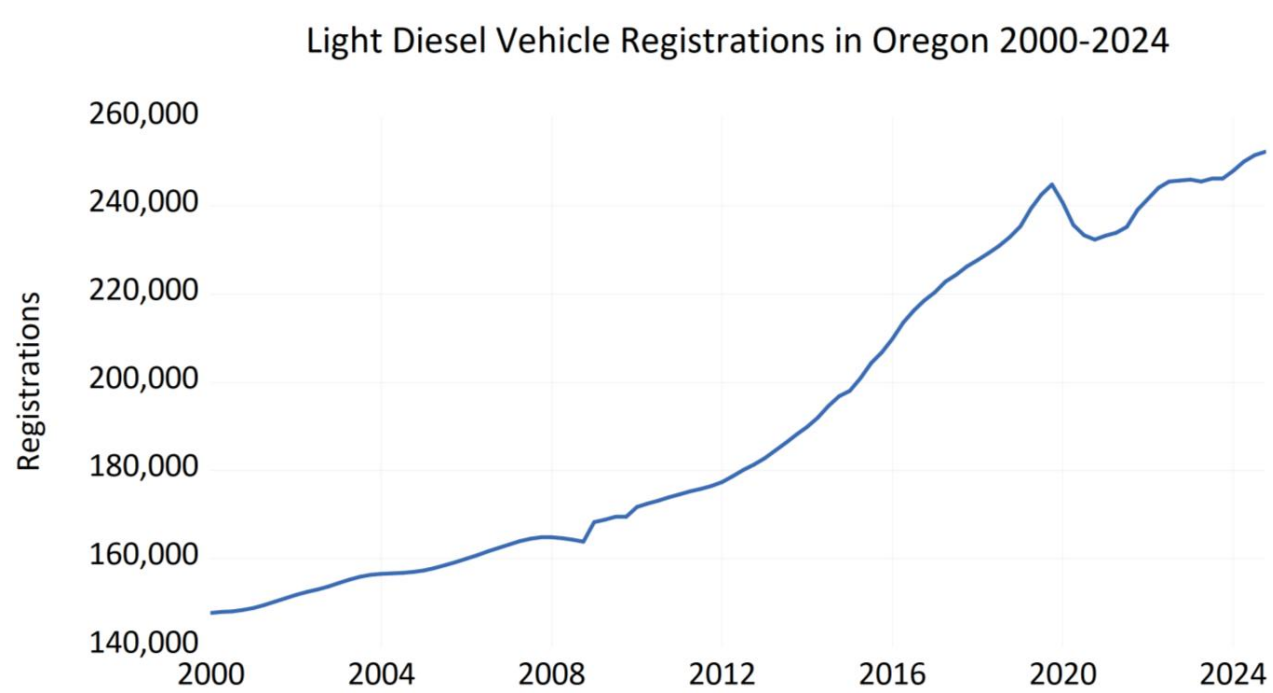


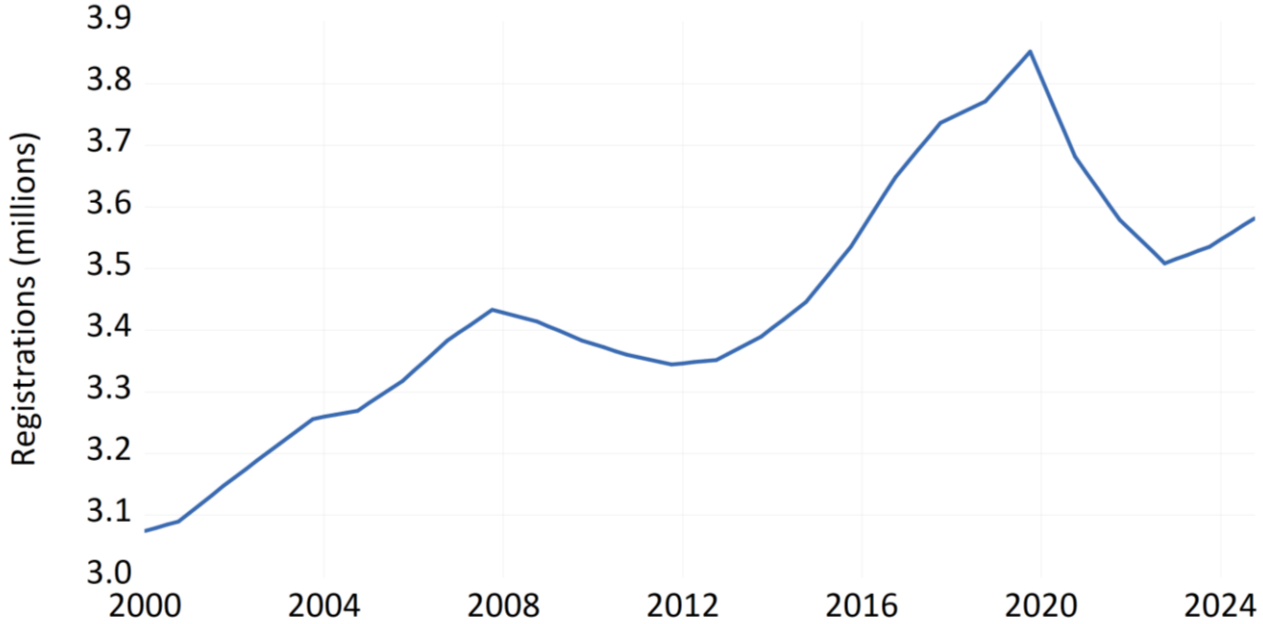


Fuel Use: Monthly Sales relative to same month 2019

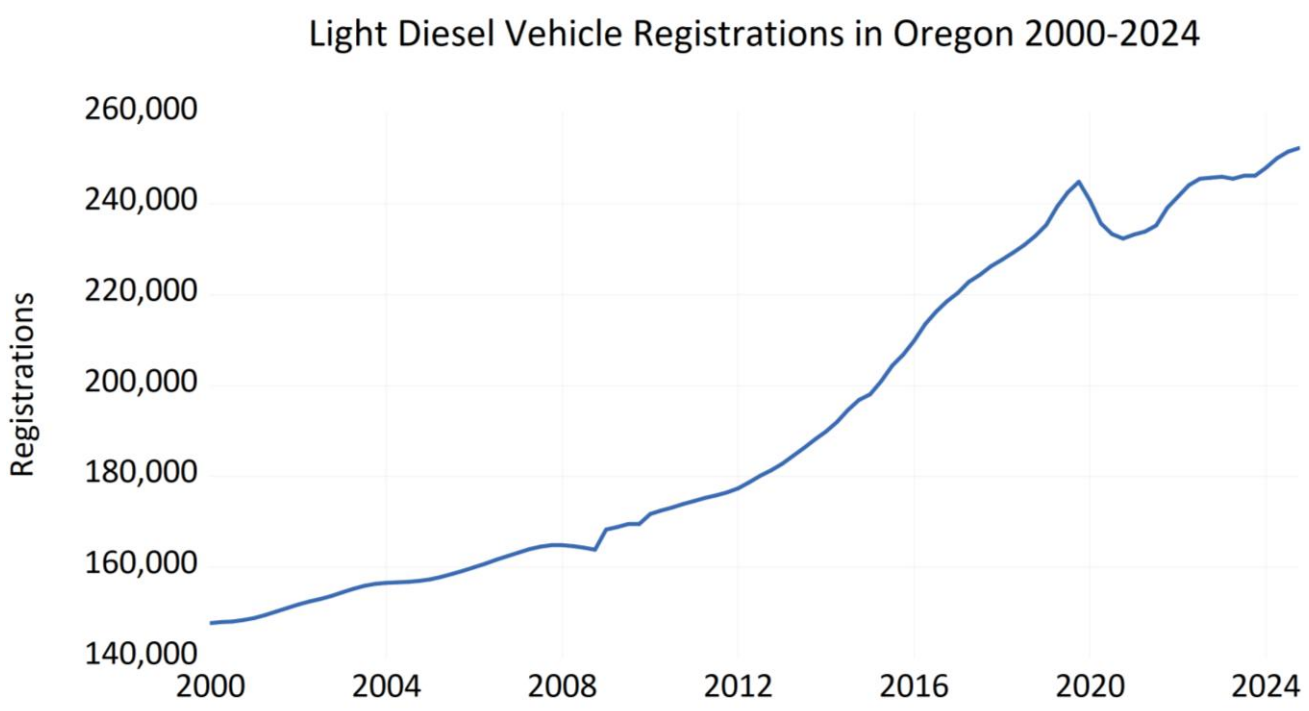


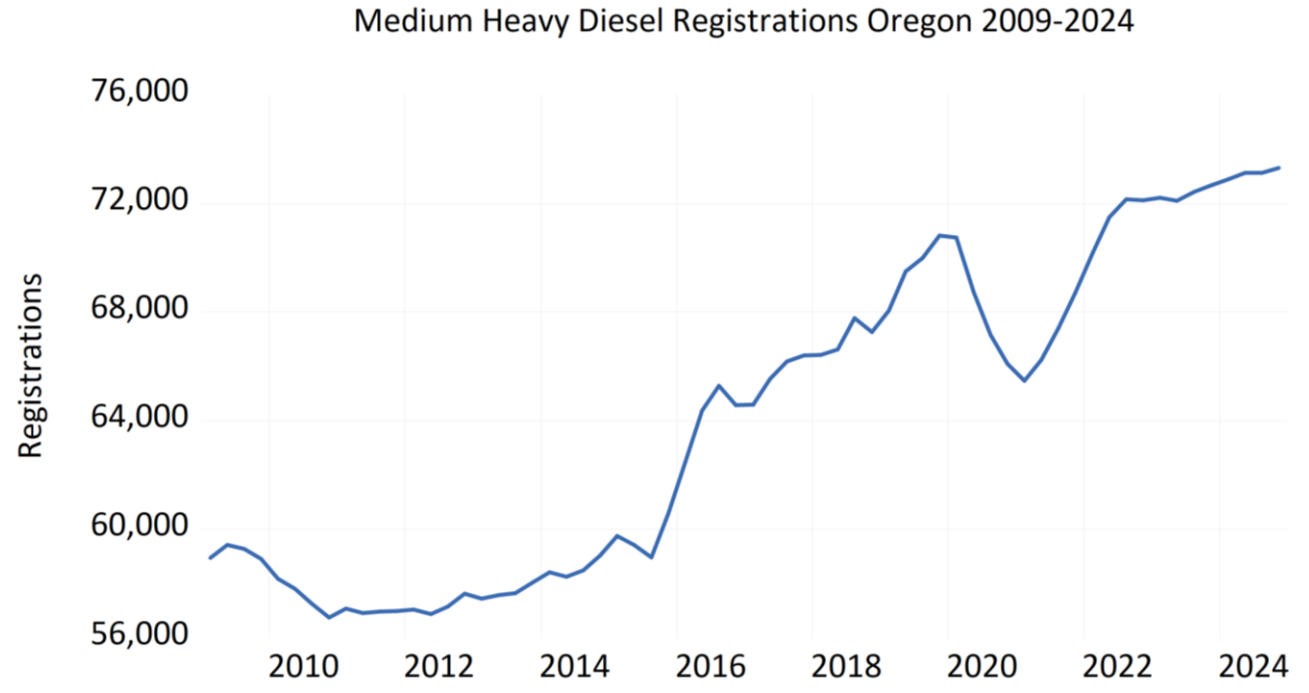
Fuel Use: Cumulative Sales relative to same month 2019. Net 444M gallon reduction, but…



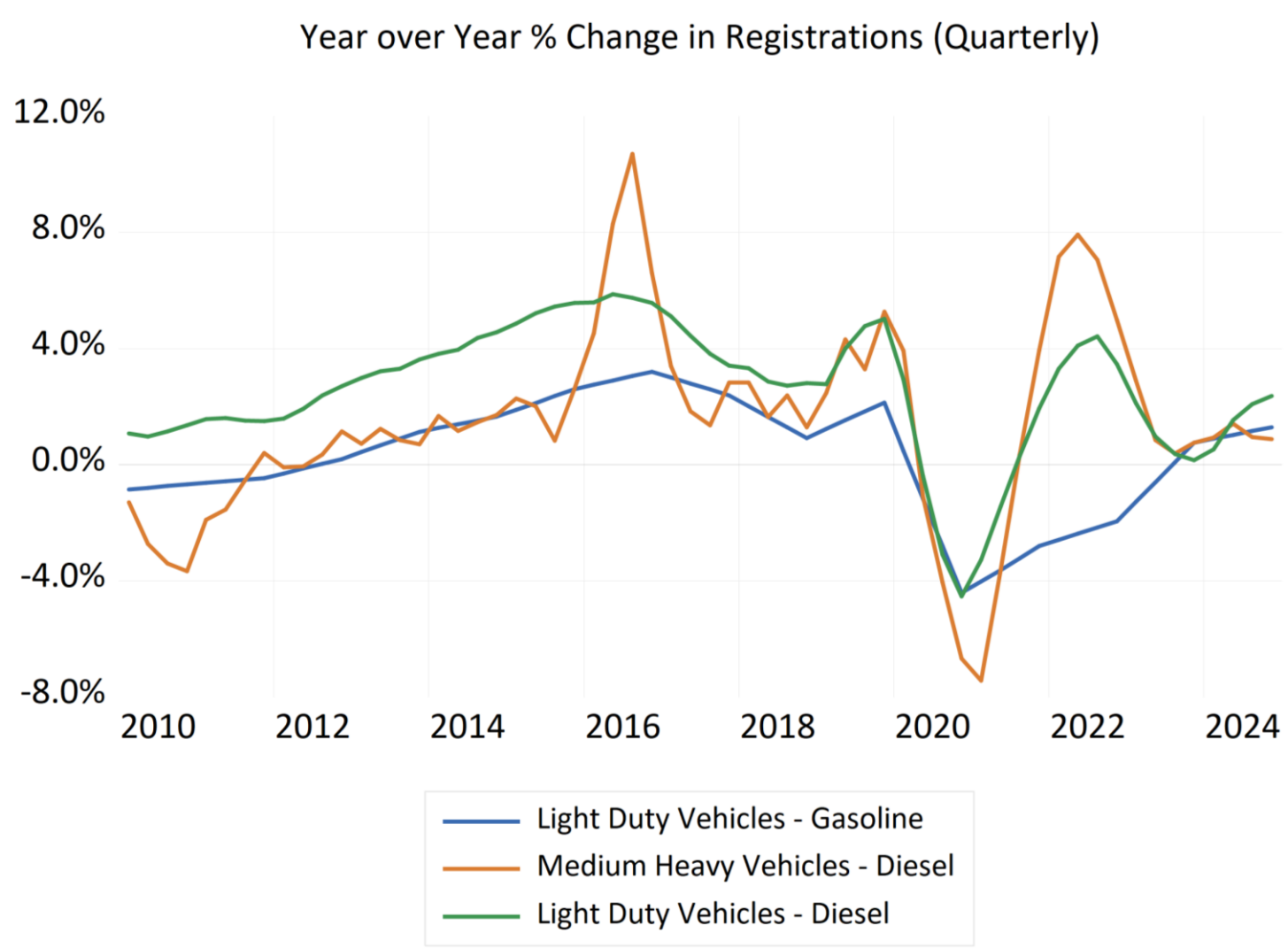


Light Vehicle Stock, Diesel vs Gas Registrations

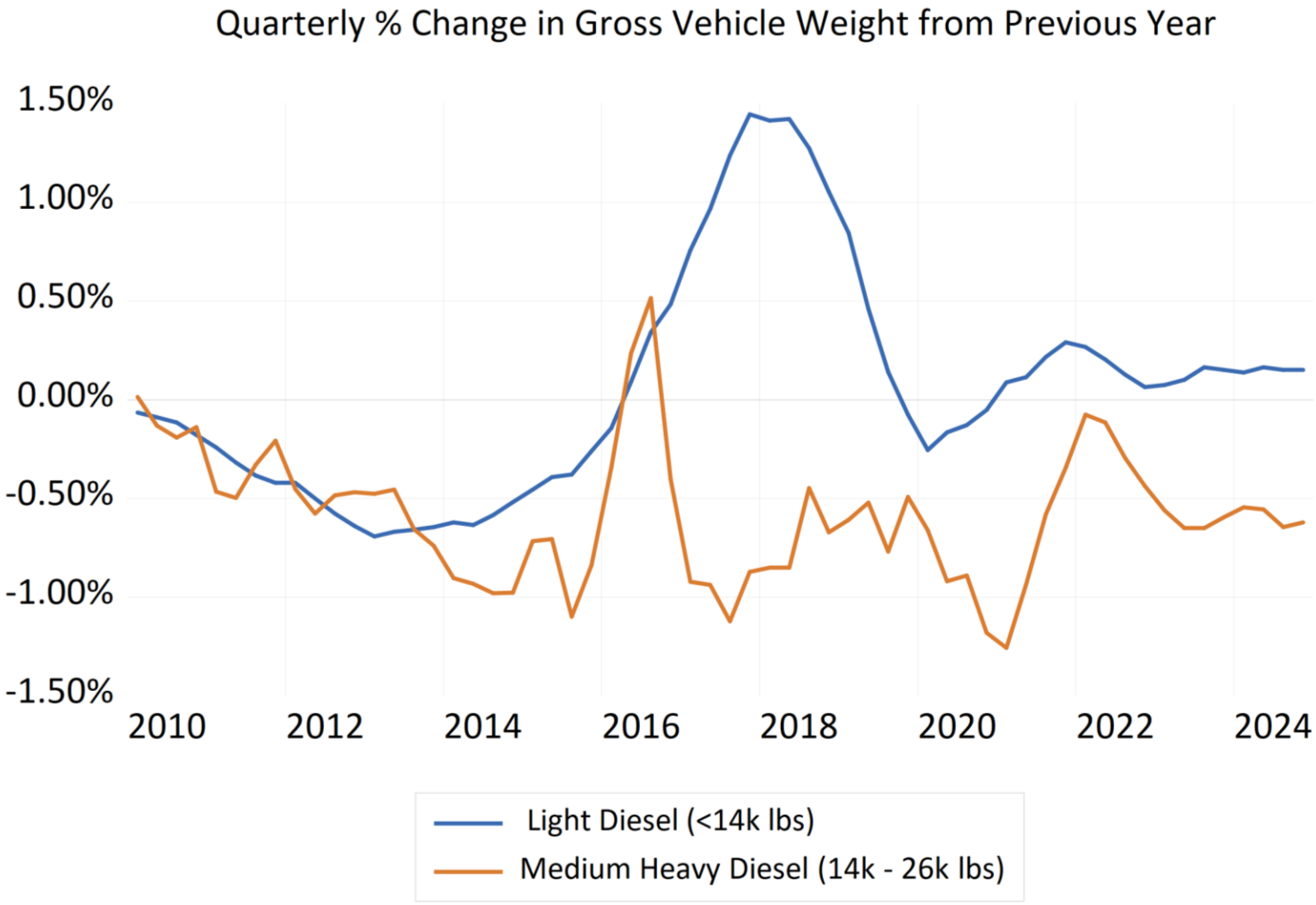




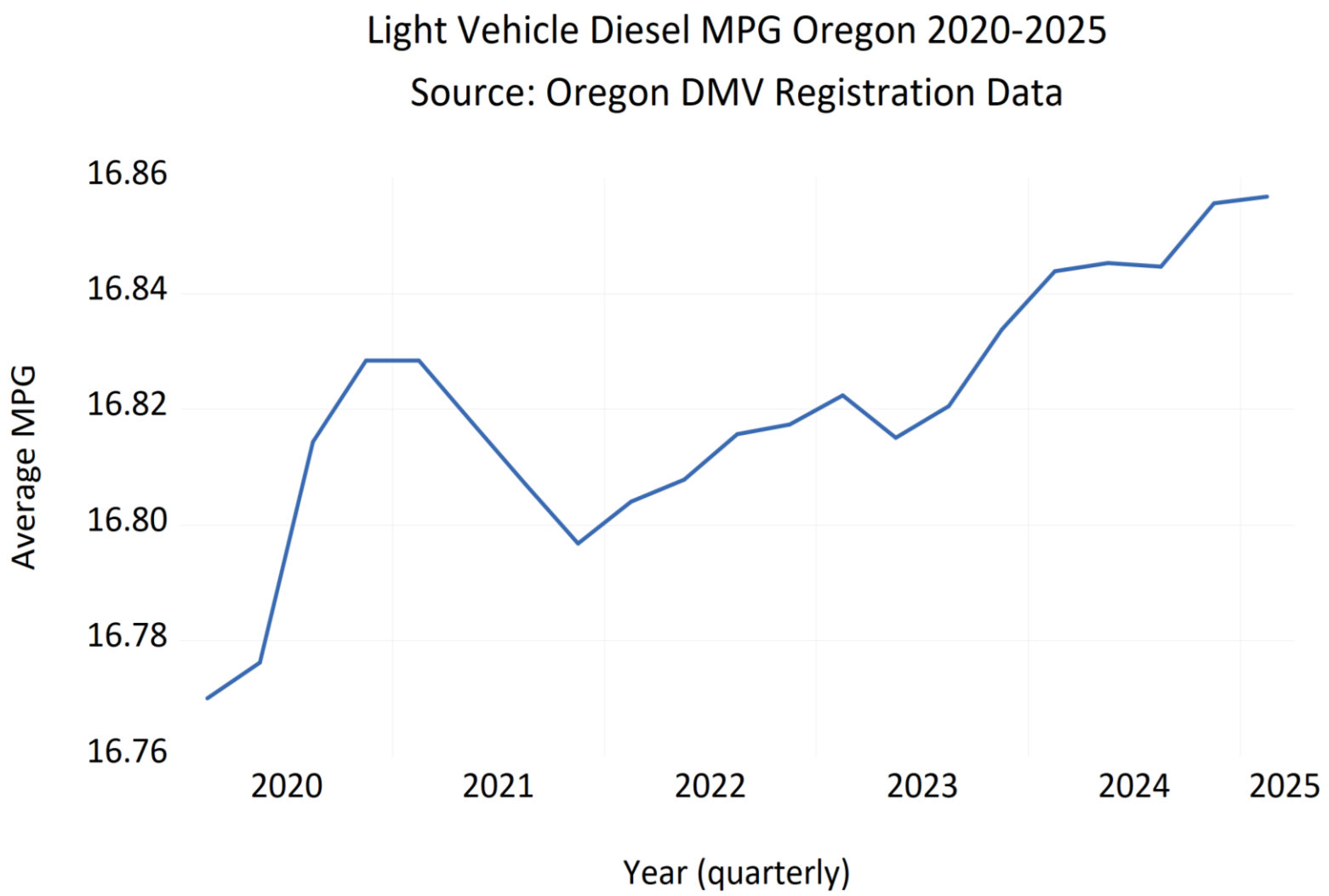
Diesel - Light vs Medium Heavy Registrations



Diesel Vehicles: Weight by Weight Class



Diesel Vehicles: Growth by Weight Class



Fuel Use: Fleet Fuel Efficiency

Diesel Forecast Model (Quarterly)

- Forecast of de-seasonalized quantities sold in the state
  - Use Fuel (Diesel)
- As a function of:
  - Real Diesel Price (Polynomial Distributed 4-Quarter Lag)
  - Stock of Diesel Vehicles
  - Oregon Trucking, Transportation, and Warehousing Employment
- Estimation of Coefficients:
  - ARMA Generalized Least Squares
  - Autoregressive term and Dummy for COVID-19 onset (2020Q1) included
  - Logs of dependent and independent vars for estimation

Estimation Results

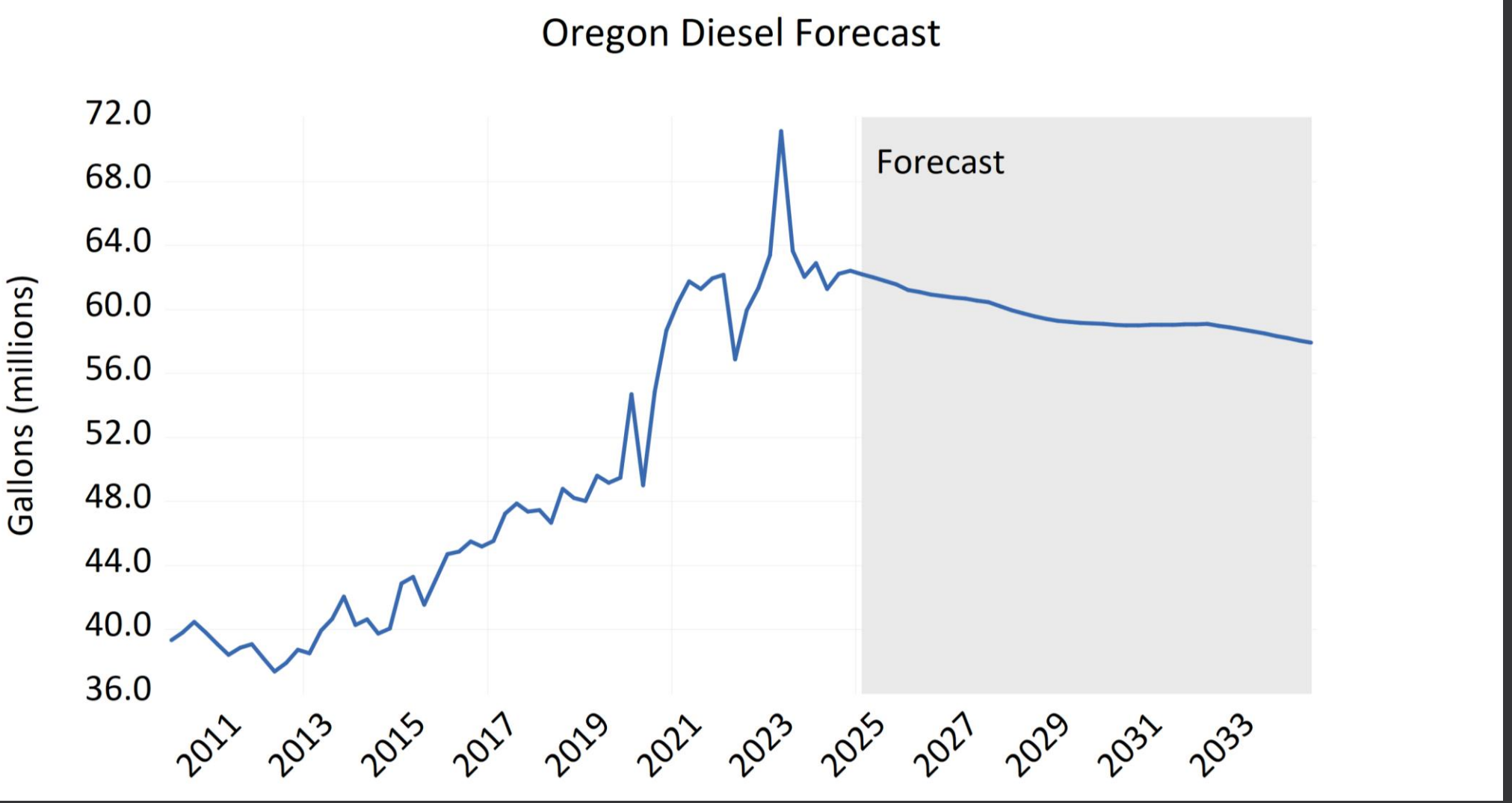
Dependent Variable: LOG(USEFUEL_M_D11)
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 05/16/25 Time: 15:14
Sample: 2005Q1 2024Q4
Included observations: 80
Convergence achieved after 36 iterations
Coefficient covariance computed using outer product of gradients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.349774	1.402620	2.388226	0.0195
LOG(STOCK_DIESEL_2504)	0.379189	0.208570	1.818044	0.0731
LOG(OEETTWU_F)	0.888845	0.258311	3.440982	0.0010
PDL01	-0.025739	0.012611	-2.040938	0.0448
AR(1)	0.803788	0.054378	14.78136	0.0000
SIGMASQ	0.001224	0.000155	7.897680	0.0000

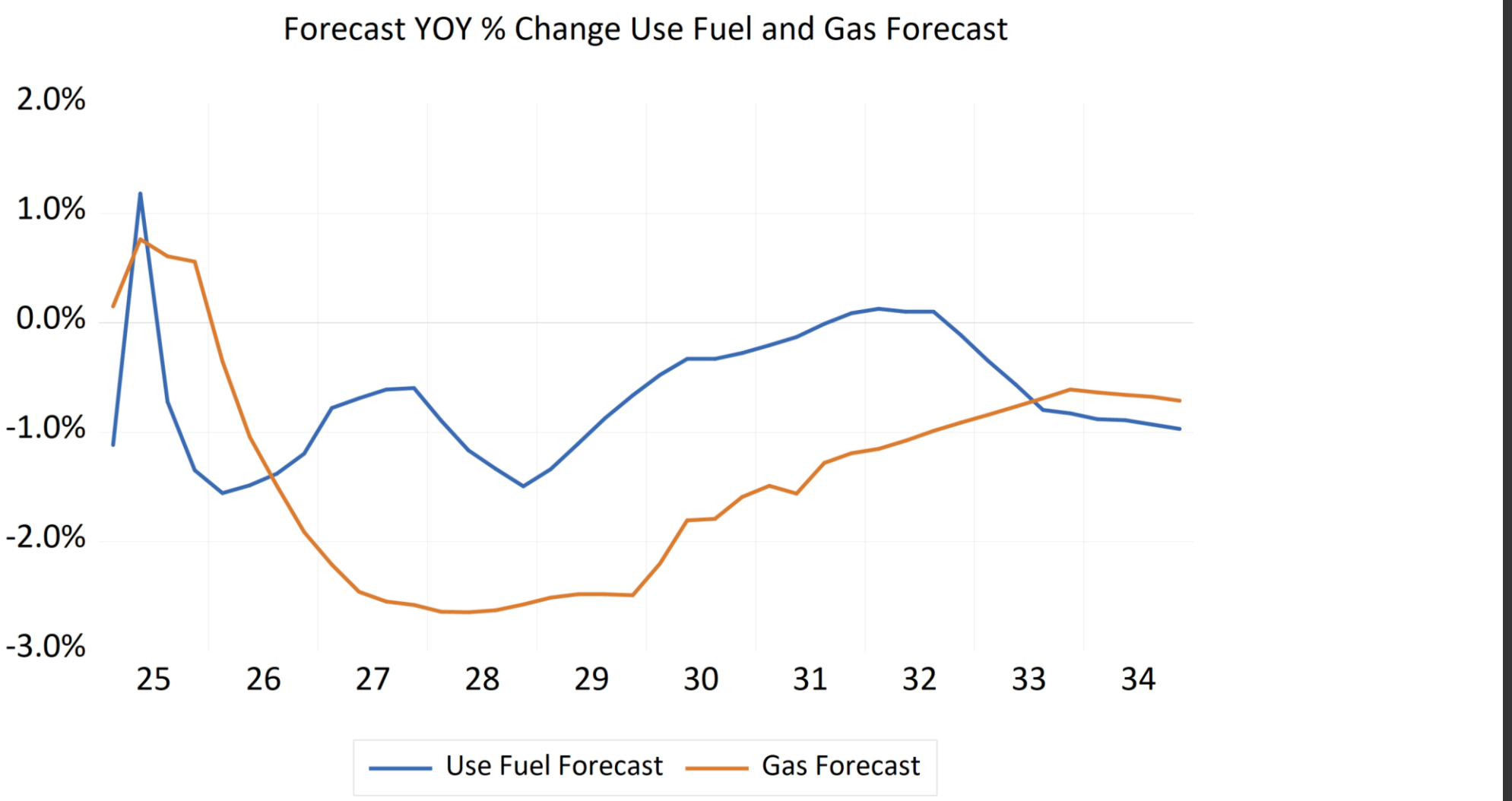
R-squared	0.964253	Mean dependent var	17.63327
Adjusted R-squared	0.961838	S.D. dependent var	0.186212
S.E. of regression	0.036377	Akaike info criterion	-3.704744
Sum squared resid	0.097923	Schwarz criterion	-3.526092
Log likelihood	154.1898	Hannan-Quinn criter.	-3.633117
F-statistic	399.2214	Durbin-Watson stat	2.238360
Prob(F-statistic)	0.000000		

Inverted AR Roots	.80

Lag Distribution of LOG...	i	Coefficient	Std. Error	t-Statistic
	0	-0.03861	0.01892	-2.04094
	1	-0.03217	0.01576	-2.04094
	2	-0.02574	0.01261	-2.04094
	3	-0.01930	0.00946	-2.04094
	4	-0.01287	0.00631	-2.04094
	5	-0.00643	0.00315	-2.04094
	Sum of Lags	-0.13513	0.06621	-2.04094



Diesel Forecast Results

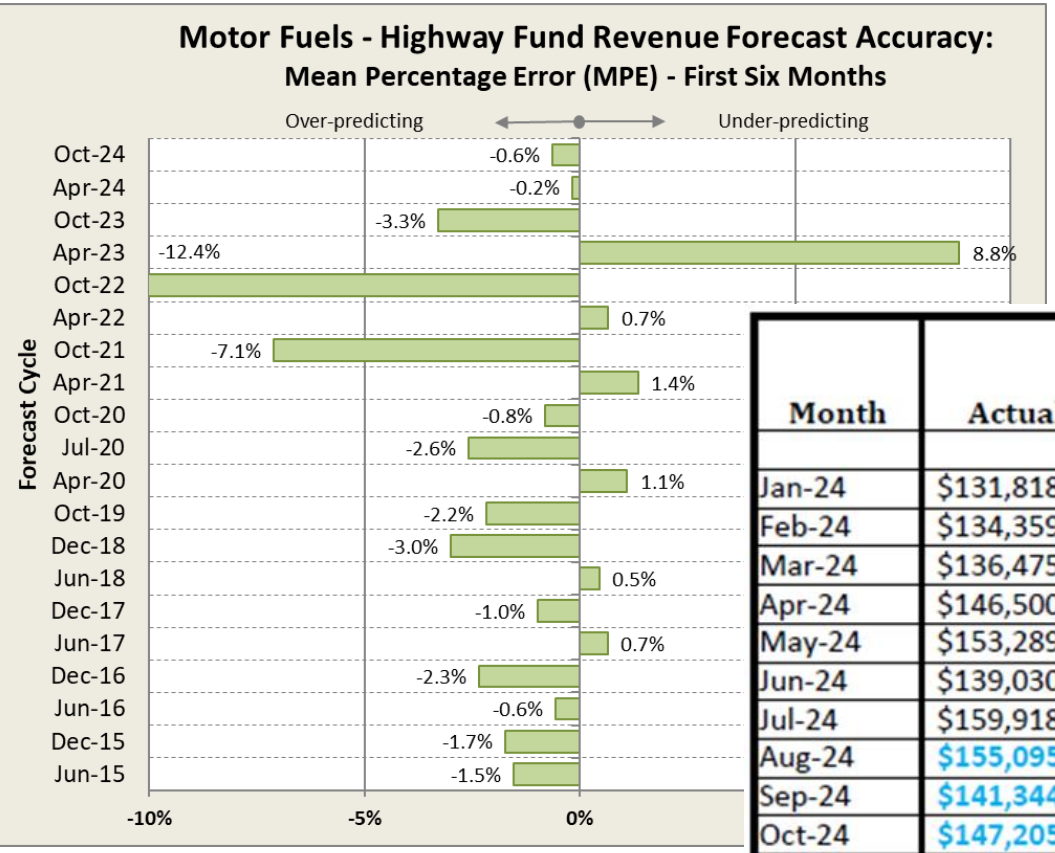


Forecast Comparison

Forecast Results: Summary

- Deisel use expected to fall slower than gasoline use.
- Recent history has shown increased adoption of diesel vehicles relative to gas vehicles, driving these differentiated results.
- Use Fuel (diesel) sales may provide buoyancy if online sales and truck delivery of goods remains strong.
- BEV Medium Heavy delivery trucks could impact results if trends continue, with Rivian Amazon trucks as early example.
- Larger diesel vehicles as primary vehicle for many households, especially in rural areas, may be playing a role as well.

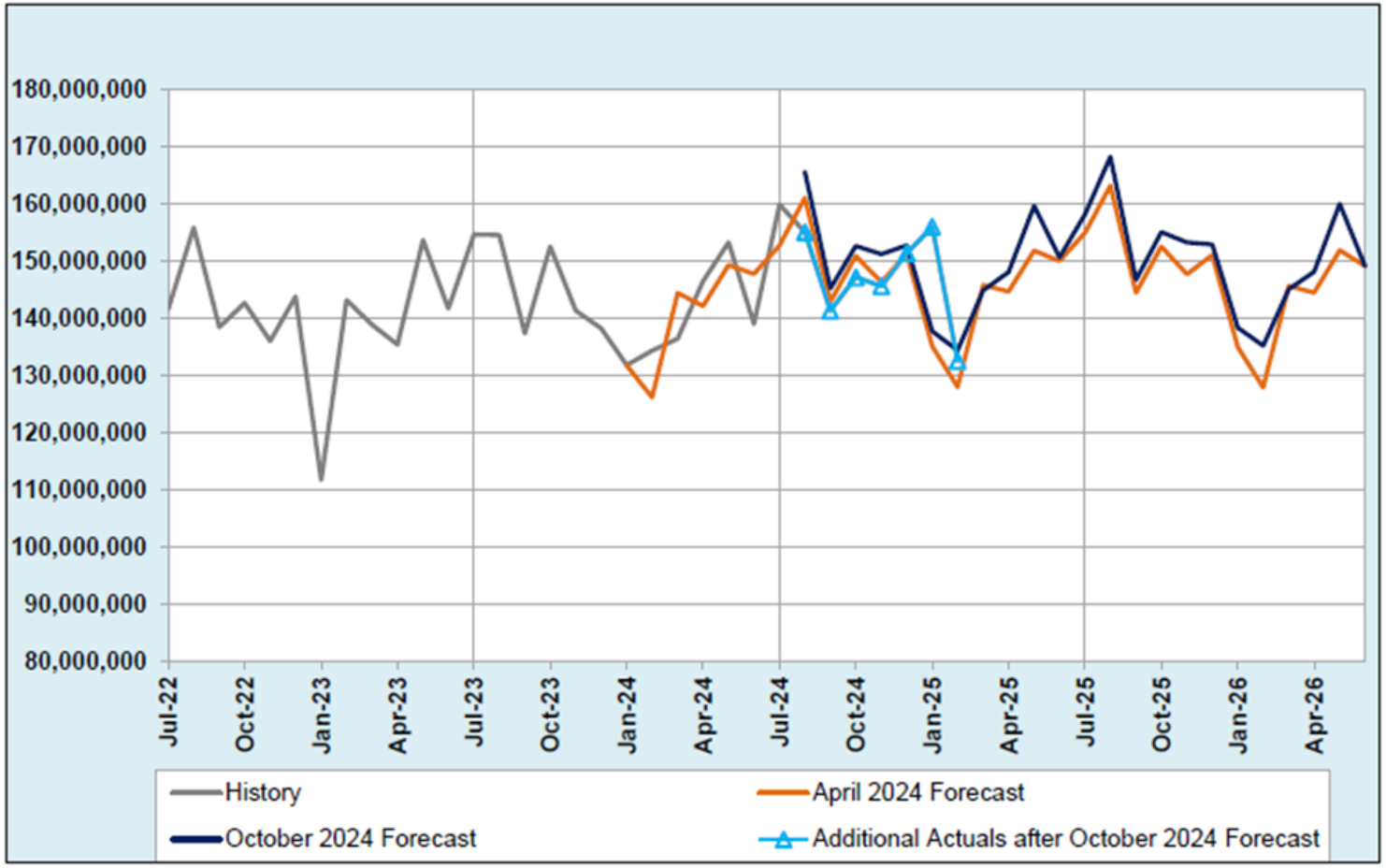
Forecast Results: So far, so good…



Month	Actual *	October 2024 Current	Over/Under Forecast (October 2024)		April 2024 Previous Forecast	Over/Under Forecast (April 2024)	
Jan-24	$131,818,792	-	-	-	$131,801,248	$17,544	0.0%
Feb-24	$134,359,216	-	-	-	$126,218,048	$8,141,168	6.5%
Mar-24	$136,475,680	-	-	-	$144,431,648	-$7,955,968	-5.5%
Apr-24	$146,500,608	-	-	-	$142,164,032	$4,336,576	3.1%
May-24	$153,289,504	-	-	-	$149,318,928	$3,970,576	2.7%
Jun-24	$139,030,768	-	-	-	$147,795,536	-$8,764,768	-5.9%
Jul-24	$159,918,192	-	-	-	$152,772,544	$7,145,648	4.7%
Aug-24	$155,095,712	$165,653,312	-$10,557,600	-6.4%	$161,063,664	-$5,967,952	-3.7%
Sep-24	$141,344,592	$145,281,248	-$3,936,656	-2.7%	$142,979,168	-$1,634,576	-1.1%
Oct-24	$147,205,936	$152,694,912	-$5,488,976	-3.6%	$150,919,904	-$3,713,968	-2.5%
Nov-24	$145,656,592	$151,257,616	-$5,601,024	-3.7%	$146,366,144	-$709,552	-0.5%
Dec-24	$151,414,032	$152,794,768	-$1,380,736	-0.9%	$151,300,752	$113,280	0.1%
Jan-25	$156,046,784	$137,755,392	$18,291,392	13.3%	$135,110,864	$20,935,920	15.5%
Feb-25	$132,575,504	$134,418,432	-$1,842,928	-1.4%	$128,012,704	$4,562,800	3.6%
Mar-25	-	$144,889,680	-	-	$145,859,920	-	-
Apr-25	-	$148,079,760	-	-	$144,694,448	-	-
Cumulative Over/Under Forecast			-$10,516,528	-1.0%		$20,476,728	1.0%

* Total highway actuals are not final because of lags in getting the actuals in certain program areas. In the cases when actuals are lagging the forecasted revenues are used instead, for that reason historic actuals will be adjusted each month as data

Forecast Results: So far, so good…



Thanks!

Questions?

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