



Updated Vermont Pathways Baseline Emissions

Presentation to the Cross-Sector Mitigation
Subcommittee

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Outline

- Low Emissions Analysis Platform
 - Description
 - Rationale for selection
- Projected Emissions
 - Baseline Update
- Next Steps

Low Emissions Analysis Platform (LEAP)

- An integrated, scenario-based modeling tool that can be used to create models of different energy systems
- Tracks energy consumption, production and resource extraction in all sectors of an economy
- Can account for both energy sector and non-energy sector greenhouse gas (GHG) emission sources and sinks
- Built-in calculations handle all the energy, emissions and cost-benefit accounting calculations
- Spreadsheet-like expressions can be used to specify time-varying data or to create a wide variety of sophisticated multi-variable models

Low Emissions Analysis Platform (LEAP)

2022 Comprehensive Energy Plan

- Baseline/BAU plus three mitigation scenarios

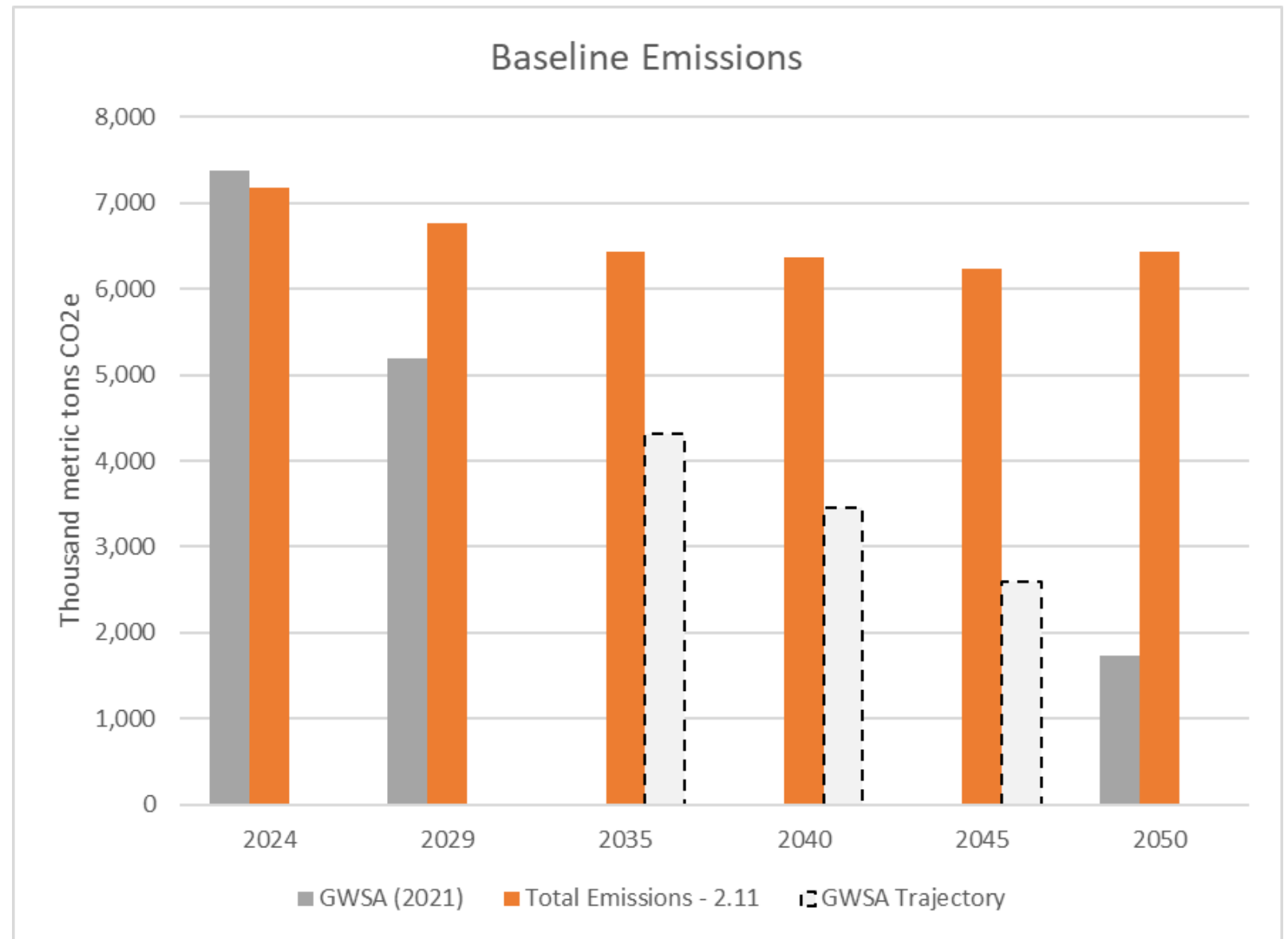
2022 – Vermont Pathways 2.0 Report

- Baseline/BAU and mitigation scenarios

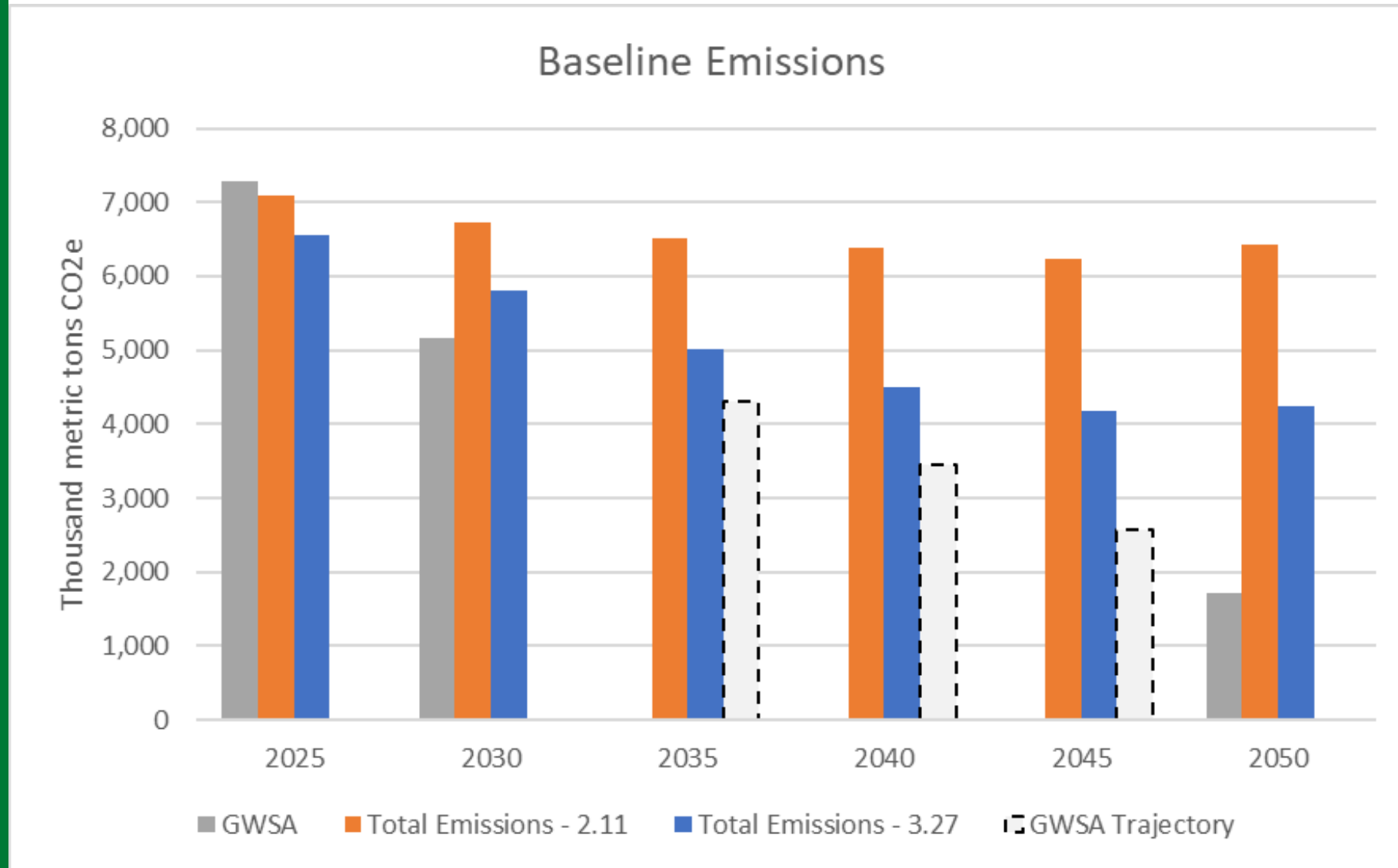
2023 - Analysis of Buildings / Thermal Energy Sector Emissions Reduction Policies for Vermont (Pathways 3.27)

- Updated baseline/BAU and thermal sector policy scenarios

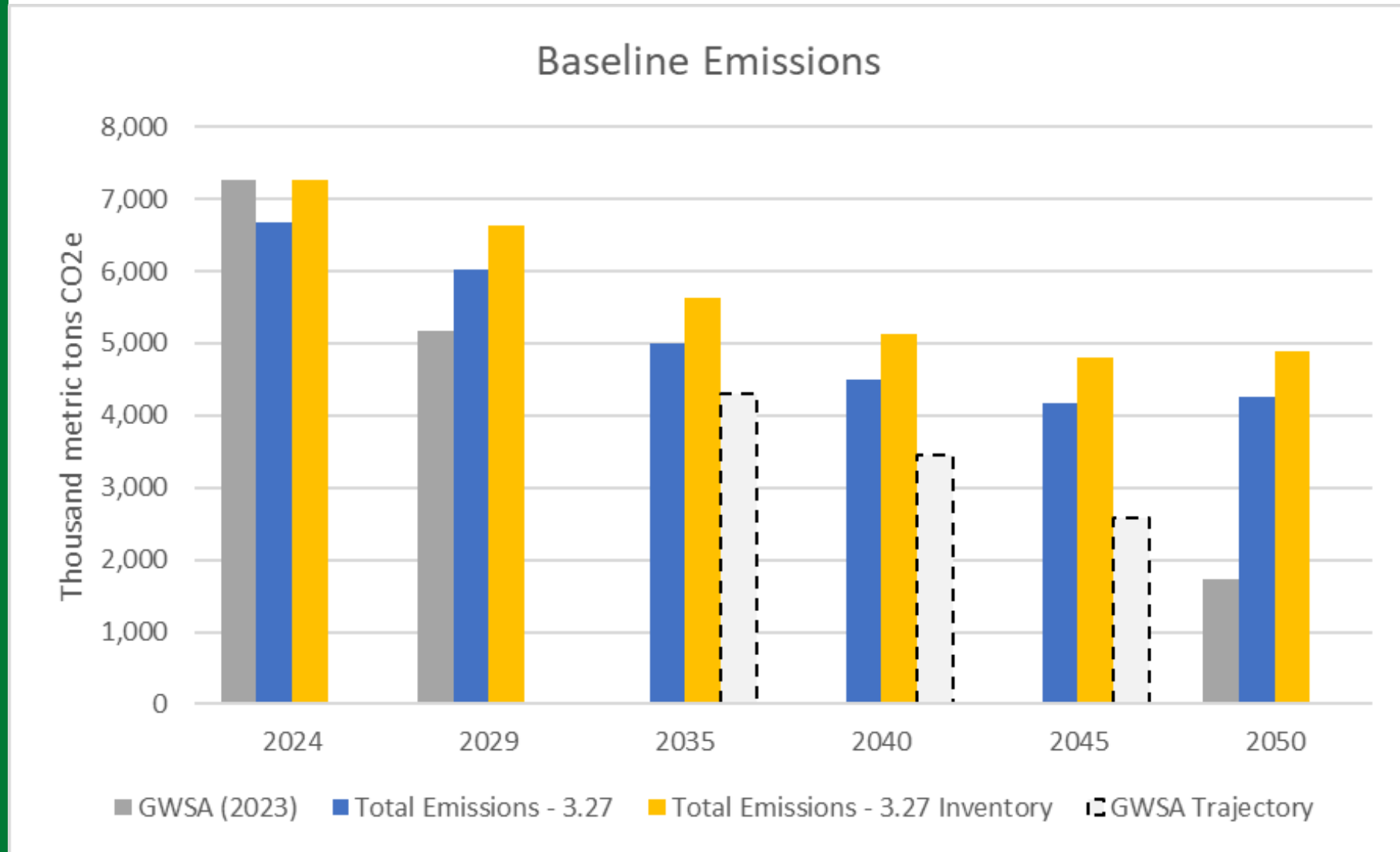
Pathways 2.0 Baseline Emissions



Pathways 2.0 v. 3.27 Baseline Emissions



Pathways 3.27 Ag Unadjusted Emissions



Pathways 3.27 v. GWSA

	Pathways 3.27 2025 (CY 2024)	GWSA 2025	Pathways 3.27 2030 (CY 2029)	GWSA 2030
Agriculture	1,190	1,153	1,217	819
Electricity Generation	120	255	164	181
R/C/I	2,287	2,423	1,888	1,720
Residential	1,025	1,302	709	924
Commercial	856	758	773	538
Industrial	406	363	406	257
Industrial Processes	565	486	580	345
Transmission and Distribution	21	25	19	17
Transportation	2,954	2,801	2,626	1,989
Waste	125	132	126	94
TOTAL	7,262	7,275	6,620	5,166
		- 13		+ 1,454

Pathways 3.27 v. Inventory

	Pathways 3.27 2025	VT GHG Inventory	Difference MMT	Difference %
2015	8.53	9.66	-1.13	-11.7
2016	8.32	9.31	-0.99	-10.6
2017	8.23	8.90	-0.67	-7.5
2018	8.24	8.83	-0.59	-6.7
2019	8.39	8.79	-0.40	-4.6
2020	7.67	7.99	-0.32	-4.0

Pathways 3.27 v. Inventory

	2015	2016	2017	2018	2019	2020
Inventory Total Gross	9,660	9,310	8,900	8,830	8,790	7,990
Total Difference (Pathways - Inventory)	1,132	994	674	586	400	319
Percent Difference Pathways v. Inventory	-11.7%	-10.7%	-7.6%	-6.6%	-4.6%	-4.0%
Inventory Electricity	1,000	920	620	310	250	180
Electricity Difference (Pathways - Inventory)	734	663	371	66	6	2
Percent Difference Pathways v. Inventory	-73%	-72%	-60%	-21%	-2%	-1%
Inventory RCI	2,940	2,700	2,700	2,940	3,000	2,870
Pathways RCI	2,880	2,623	2,642	2,881	2,927	2,766
RCI Difference (Pathways - Inventory)	60	77	58	59	73	104
Percent Difference Pathways v. Inventory	-2.0%	-2.9%	-2.1%	-2.0%	-2.4%	-3.6%
Inventory Transportation	3,500	3,490	3,400	3,400	3,340	2,850
Transportation Difference (Pathways - Inventory)	3	39	39	176	12	15
Percent Difference Pathways v. Inventory	-0.1%	1.1%	1.2%	-5.2%	-0.3%	-0.5%
Fossil Fuel TD Inventory	20	20	30	30	30	30
Fossil Fuel TD Difference (Pathways - Inventory)	10	0	10	7	7	8
Percent Difference Pathways v. Inventory	-50%	0%	-33%	-23%	-22%	-27%
Industrial Processes Inventory	620	610	600	590	630	650
Industrial Processes Difference (Pathways - Inventory)	42	40	38	33	77	95
Percent Difference Pathways v. Inventory	-6.8%	-6.5%	-6.3%	-5.6%	-12.3%	-14.6%
Waste Management Inventory	170	150	150	160	160	160
Waste Management Difference (Pathways - Inventory)	47	26	26	36	36	36
Percent Difference Pathways v. Inventory	-27%	-17%	-17%	-22%	-23%	-22%
Agriculture Inventory	1,420	1,410	1,400	1,400	1,380	1,260
Agriculture Difference (Pathways - Inventory)	245	216	210	210	190	69
Percent Difference Pathways v. Inventory	-17%	-15%	-15%	-15%	-14%	-5%

Next Steps

Continuing Updates

ANR plans contract for continuing updates to and support for Vermont Pathways model

Thank you

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For more information, please go to our
website: <https://climatechange.vermont.gov>

Supplemental Information

June 13, 2024 | 16

Pathways 3.27 Updates

General

- Fuel/energy prices based on 2023 Annual Energy Outlook
- Added a biofuel blending target for heating oil consistent with NY statute
- Calibrated commercial, industrial and transportation energy use through 2021 with State Energy Data System (SEDS) data

Pathways 3.27 Updates

Buildings

- Increased the number of projected residential weatherization projects based on Efficiency Vermont and DCF's Office of Economic Opportunity forecasts
- Increased projected heat pump shares based on impacts of Efficiency Vermont rebate program and the Inflation Reduction Act

Pathways

3.27 Updates

Buildings

- Reduced the share of heating load met by single and double-headed heat pumps
- Introduced heat pump water heaters, air-to-water heat pumps, and advanced pellet boilers into baseline
- Updated historical space heating, water heating, and cooking technology shares

Pathways

3.27 Updates

Transportation

- Incorporated VT adoption of Advanced Clean Cars II / Advanced Clean Trucks
- Updated Vehicle Distance Travelled estimates for 2020, 2021
- Updated the number of EVs and PHEVs on the road at the beginning of 2023