



LubeTrends Live!

The Road Ahead: Commercial Vehicle Electrification Through 2040

USA & Canada

Presentation for:



Date: 7th October 2025



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- + **Scope of Study Conducted for ILMA Members**
- + Overview of Macro Economic Outlook and Policy
- + CVL Lubricant demand for On-highway and Off-highway
- + OEM Landscape
- + Implications for ILMA Members

Kline assessed the impact of electrification on the commercial lubricants (CVL) sector in US & Canada

The study includes an assessment of the key aspects which can impact the lubricant demand in CVL sectors:

- » Macro-economic outlook
- » Regulatory scenario impacting sector outlook and electrification
- » Technological changes and customer needs
- » OEM initiatives

USA

CANADA

On-Highway

1. Analysis of regulatory impact on EV penetration

2. Develop Scenarios for HDMO demand impact

Off-Highway: Construction, Agriculture, Mining

1. Analysis of current vehicle parc

2. Estimation of Equipment- wise electrification outlook

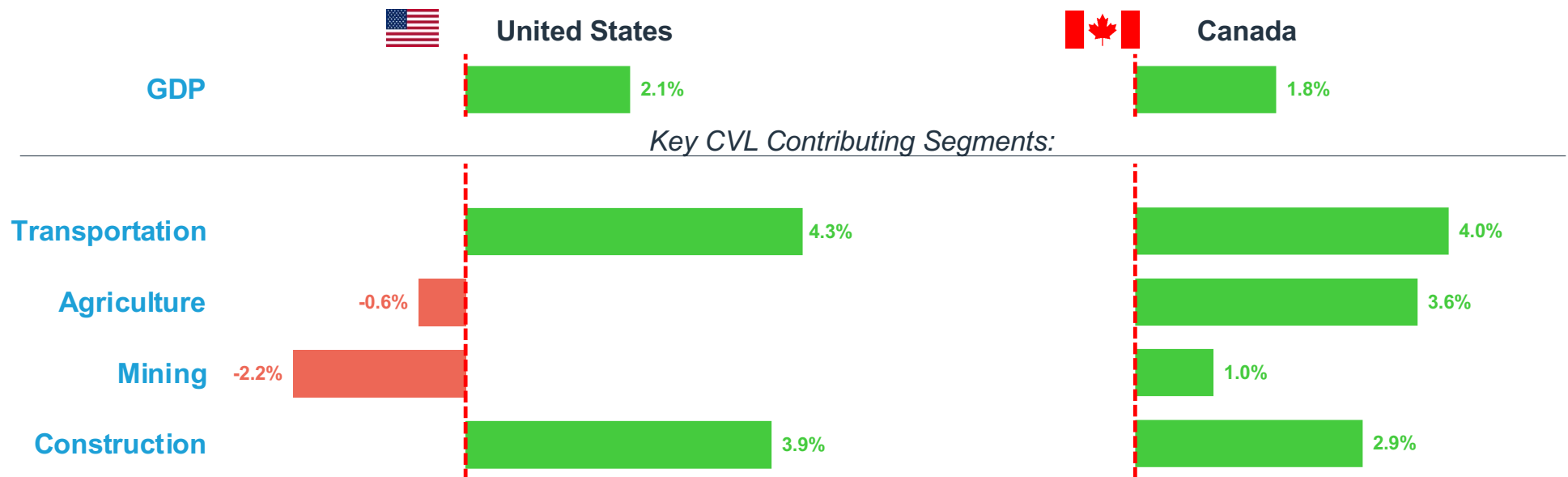
3. HDMO Demand Outlook

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Macro Forecast: Both economies are expected to continue modest growth in the next decade, with the Construction and Transportation outperforming other segments

Macro Projections: 2024-34 CAGR, %*



Key Takeaways:

U.S.: Agriculture and mining, particularly coal mining, is likely to experience contraction. However, construction and transportation services will remain among the key drivers of the broader economy.

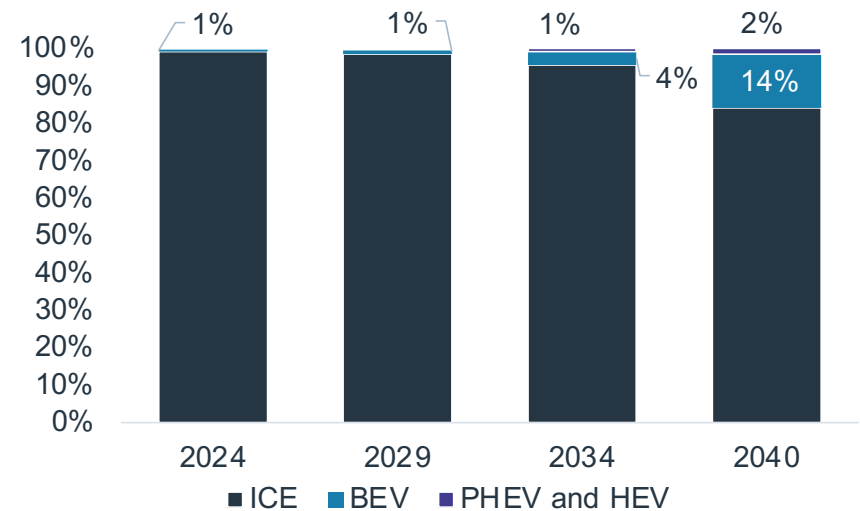
Canada: All CVL-contributing segments are expected to expand. The decline in coal mining is anticipated to be counteracted by an increase in metal ore mining. Transportation, agriculture, and construction are all expected to outperform the broader economy..

Policy Impact on On-highway Vehicle Parc: Current US policy and regulations have minimal impact on On-highway parc by 2040 (mid-scenario)

Trump Administration (2025) Highlights

- Proposed repeal of the 2009 Endangerment Finding → would remove legal basis for GHG standards
- Reconsideration of EPA's finalized GHG Phase 3 rule for heavy-duty trucks (MY 2027–2032)
- Blocking CARB authority: federal push to stop California's ZEV mandate & 2035 gas-car ban
- Eased DEF rules, loosening truck compliance enforcement

On-Highway EV Penetration Parc Outlook – Mid EV Scenario



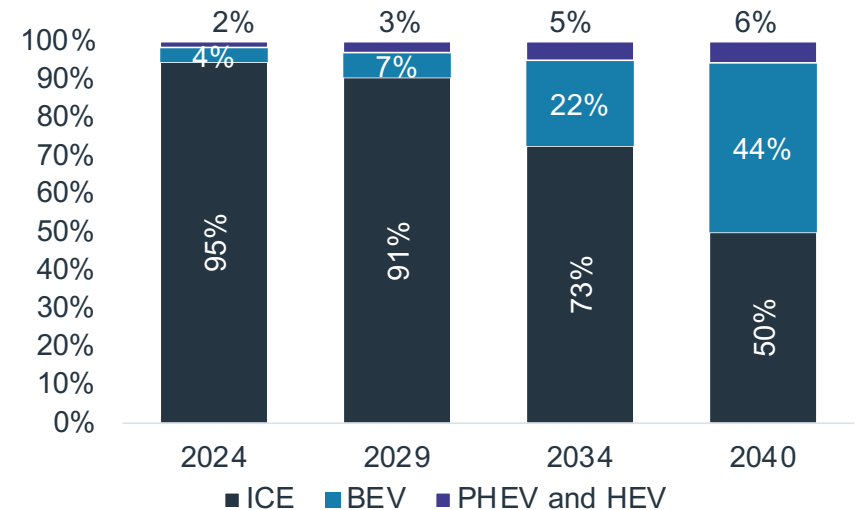
USA

Policy Impact on On-highway Vehicle Parc: Electrification by 2040 almost 50% driven by 2040 target of 100% new sales of medium and heavy-duty vehicles be Zero Emission

Policy Highlights:

- 2022: **EV Availability Standard** Requiring 20% ZEV share of new light-duty vehicles by 2026, rising to 60% by 2030 and 100% in 2035
- 2023: **Passenger Automobile and Light Truck GHG Emissions Regulation (SOR/2023-275)** All new light trucks sold in Canada be zero-emission by model year 2035
- 2026: **ZEV mandates to come in effect** 20% ZEV share of light vehicles sold, under the *Enforcement of Electric Vehicle Availability Standard*.
- 2030: **Canada's 2030 ERP Medium- and Heavy-Duty Vehicles target of 35% zero-emission sales**
- 2040: **Federal ERP and Global MOU on ZE-MHDVs** Mandatory ZEV sales for 100% of medium- and heavy-duty vehicles

On-Highway EV Penetration Parc Outlook – Mid EV Scenario

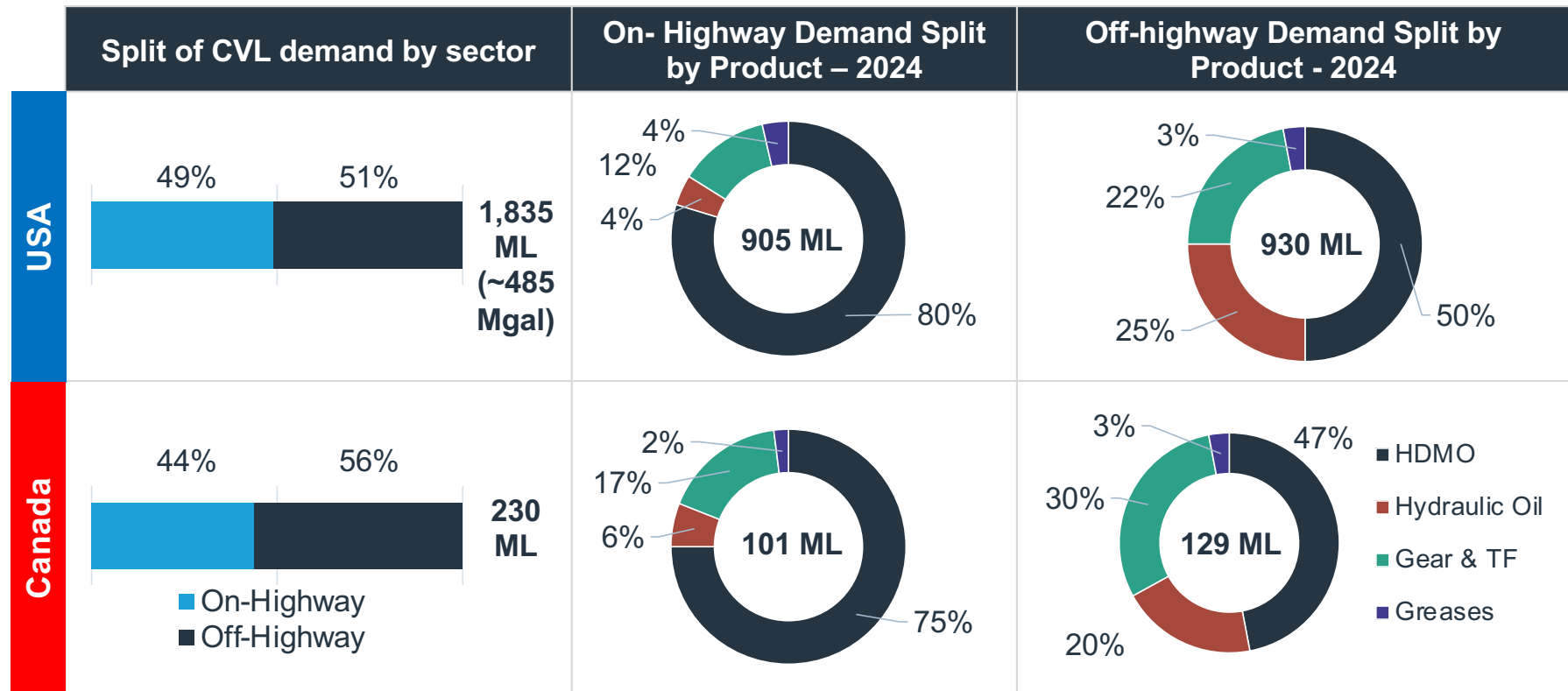


Canada

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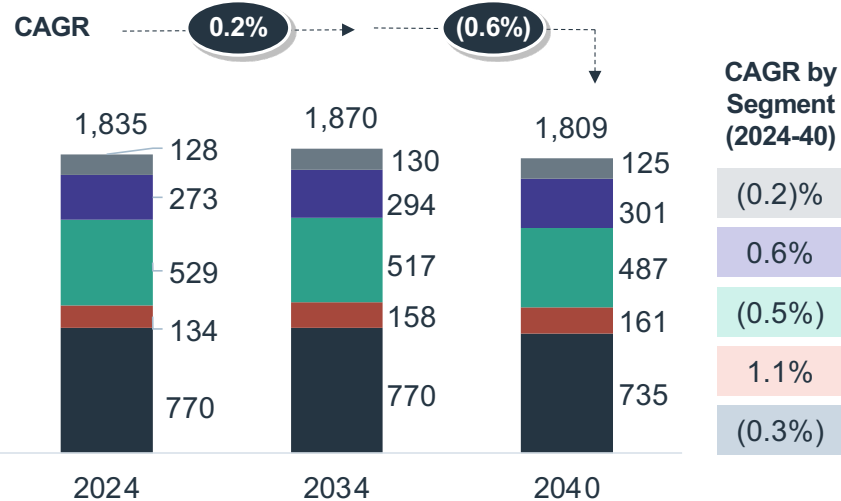
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Current situation: The demand for commercial lubricants is roughly equally distributed between the off-highway and on-highway sectors in US & Canada; with USA volume ~8 X larger

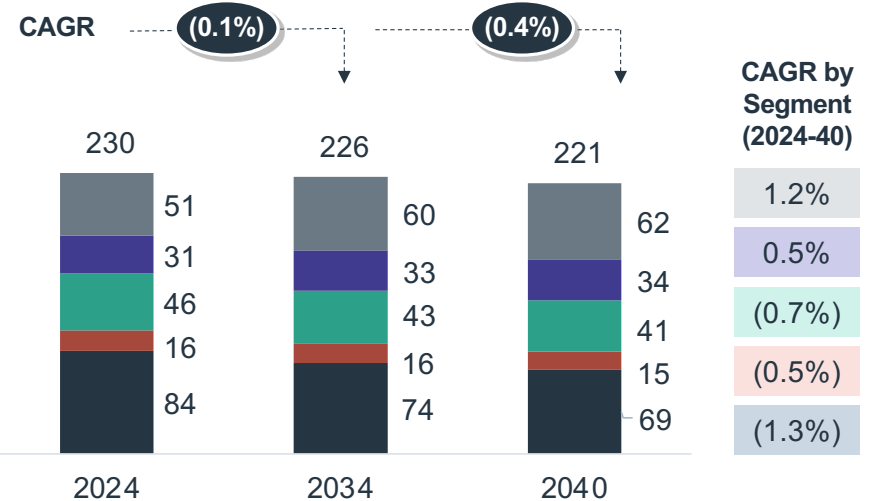


The volume outlook is estimated to be declining driven mainly by electrification and higher adoption of synthetic HDMO

USA CVL Baseline Demand – Volume Outlook, ML



Canada CVL Baseline Demand – Volume Outlook, ML

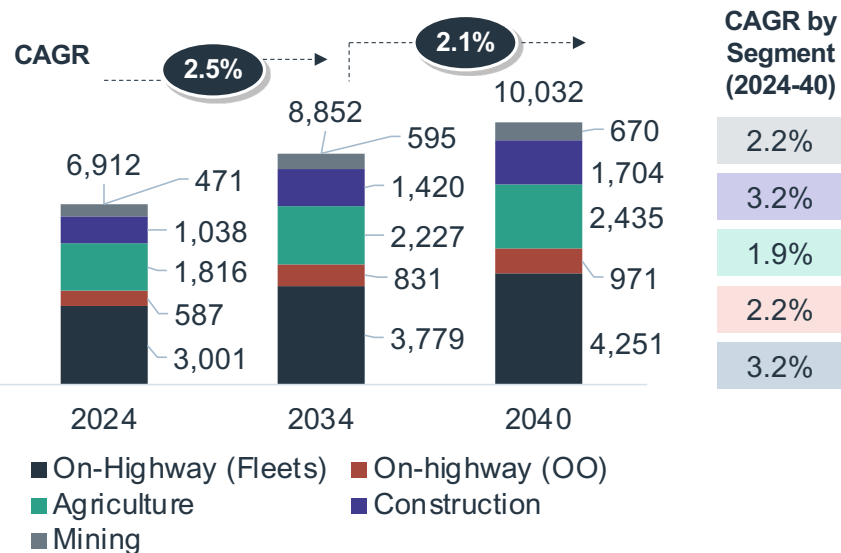


■ On-Highway (Fleets)
 ■ Agriculture
 ■ Mining

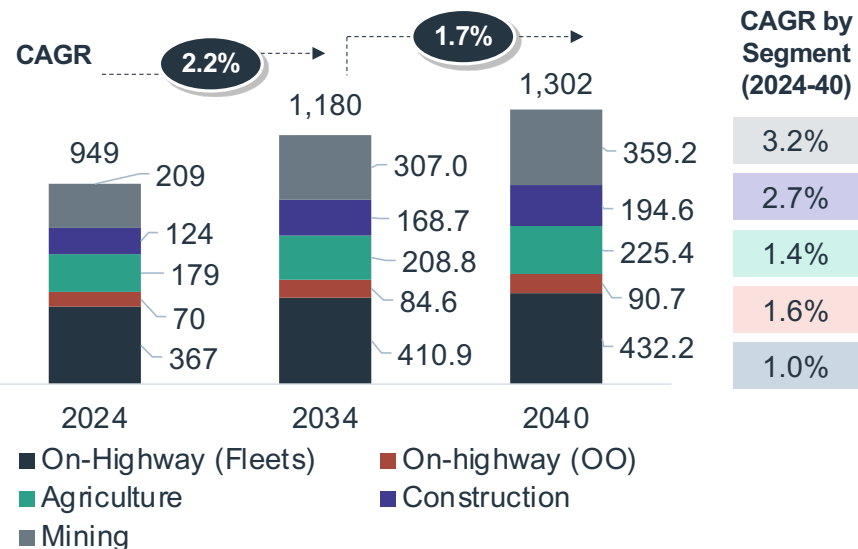
■ On-highway (OO)
 ■ Construction

Value growth outpaces volume as premium HDMO drives market uplift across segments

USA CVL Baseline Demand – Value Outlook, \$ million



Canada CVL Baseline Demand – Value Outlook, \$ million

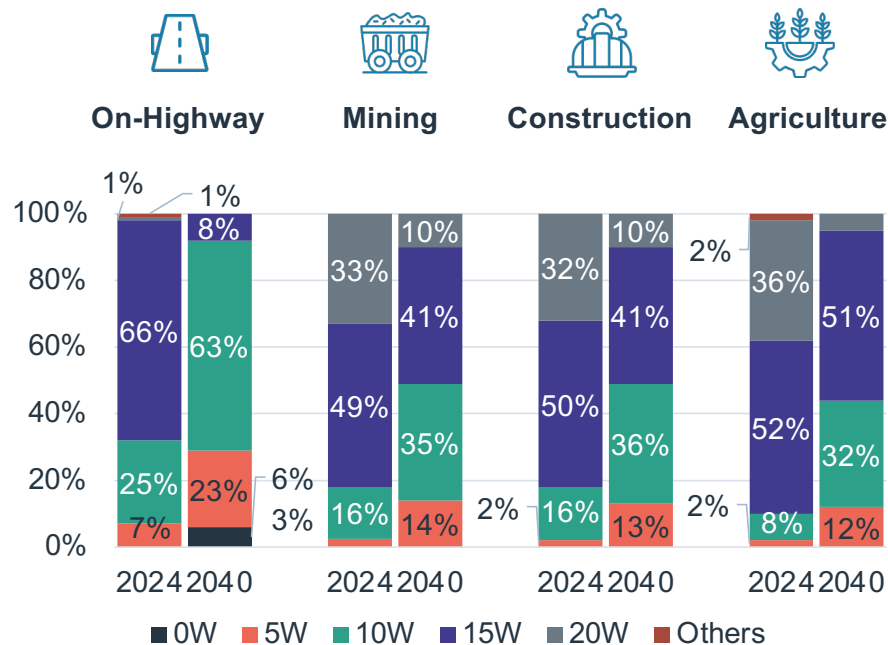


Two key factors drive growth in value:

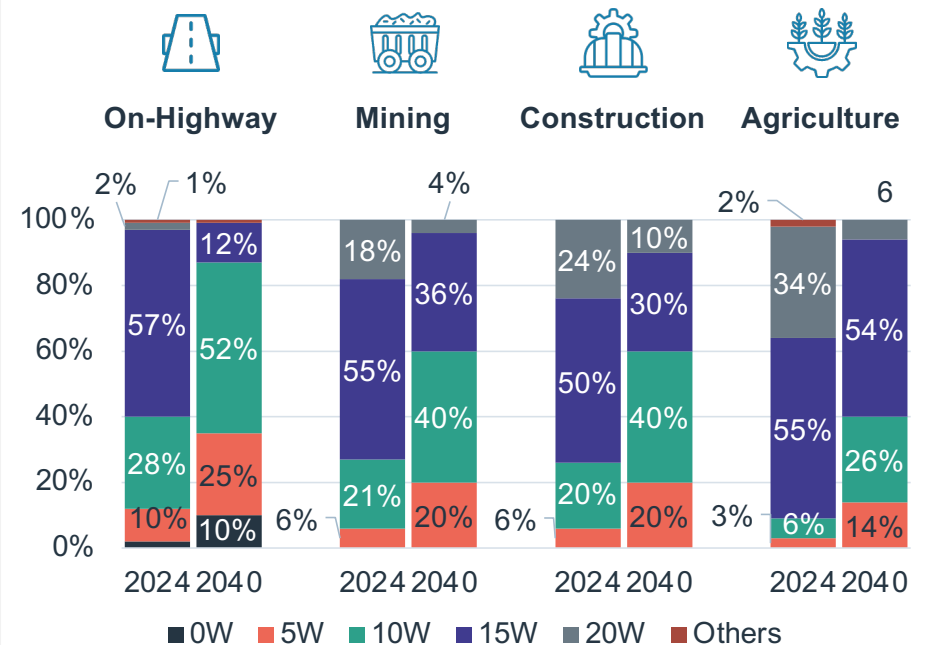
- » Shift towards lower viscosity HDMO grades
- » Shift towards premium lubricants

Canada leads the early adoption of lighter viscosity grades driven by the cold climate and long-haul economics

USA HDMO Outlook by Viscosity Grade

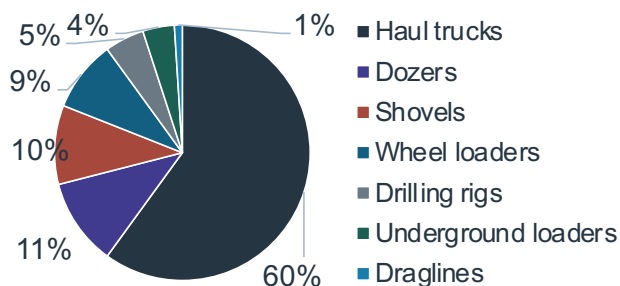


Canada HDMO Outlook by Viscosity Grade

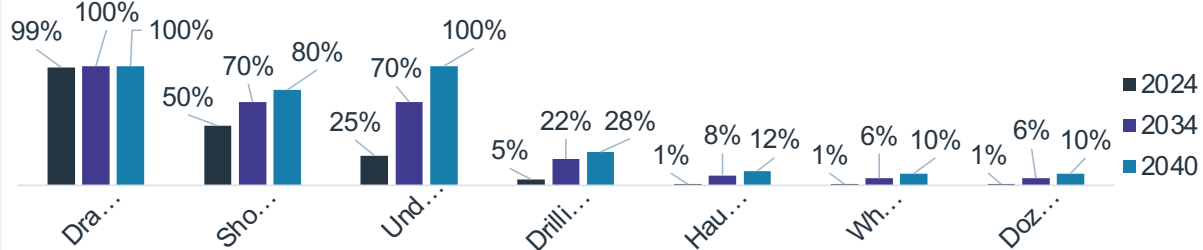
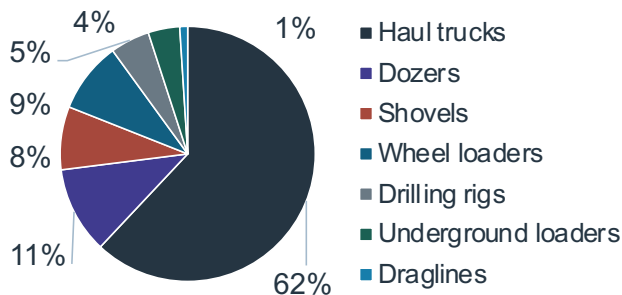
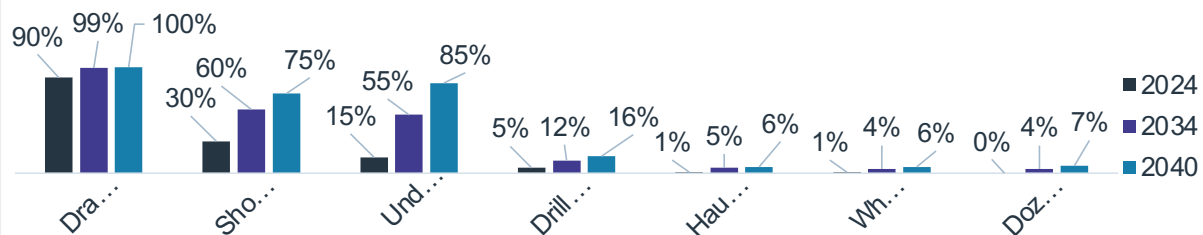


Mining: Electrification in surface mining limited largely to draglines and shovels whereas underground mining operations expected to mainly use electric equipment by 2040

Mining Sector HDMO Demand by Equipment, 2024

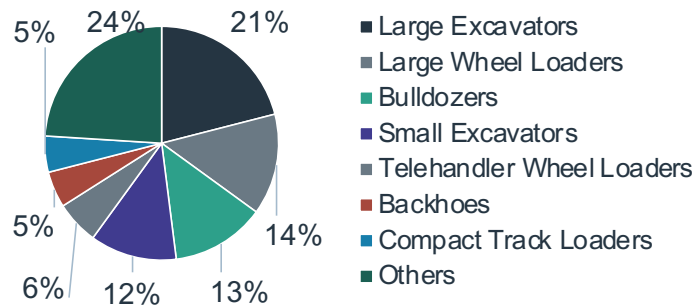
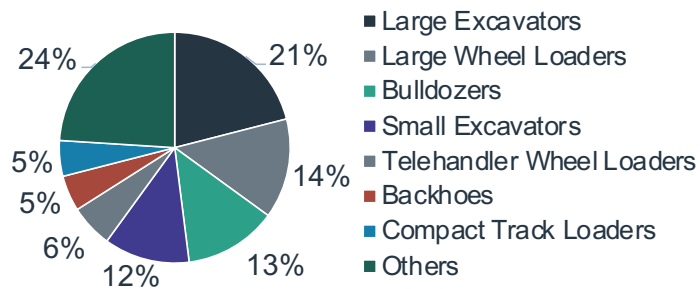


Equipment wise Electrification Outlook – Mining

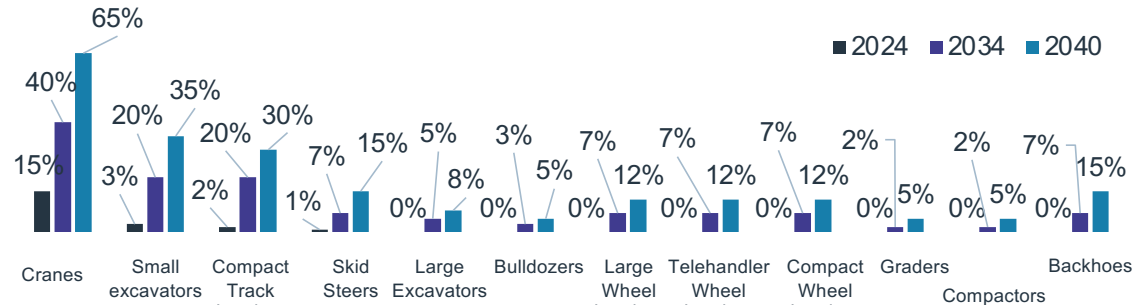
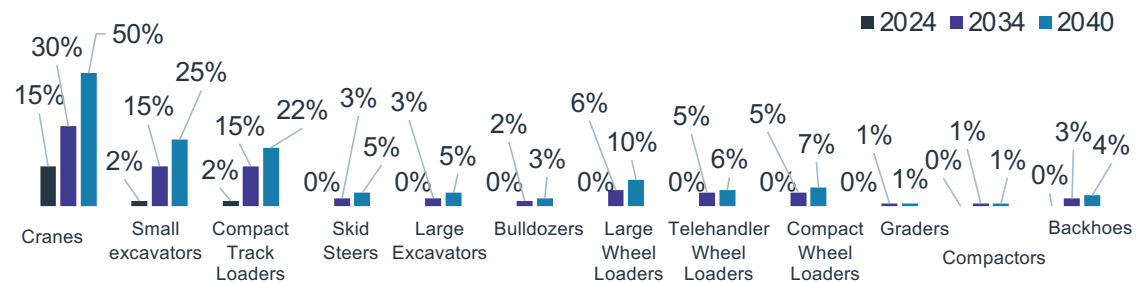


Construction: Excavators, wheel loaders, and bulldozers dominate HDMO demand, but are mostly diesel-powered due to high duty cycles and high cost of electric models

Construction Sector HDMO Demand by Equipment, 2024



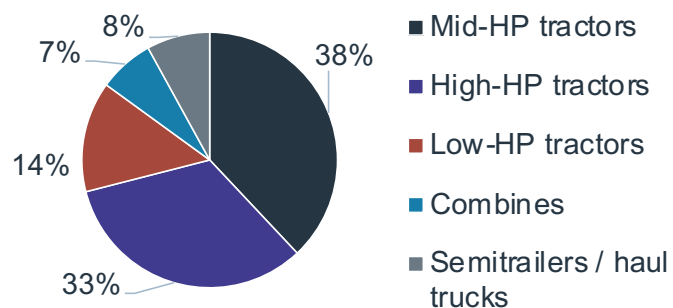
Equipment wise Electrification Outlook – Construction



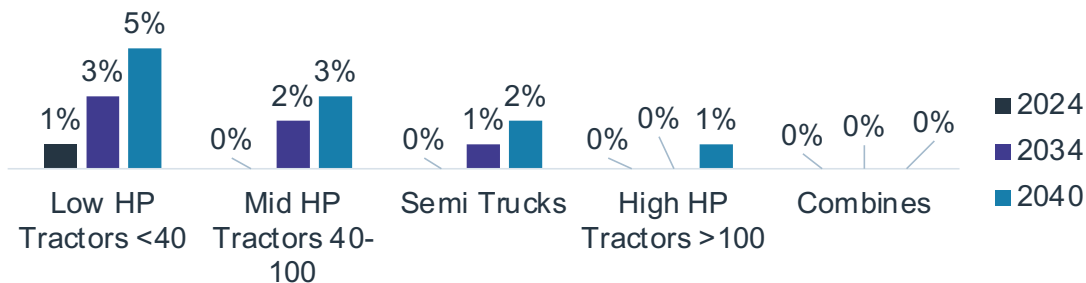
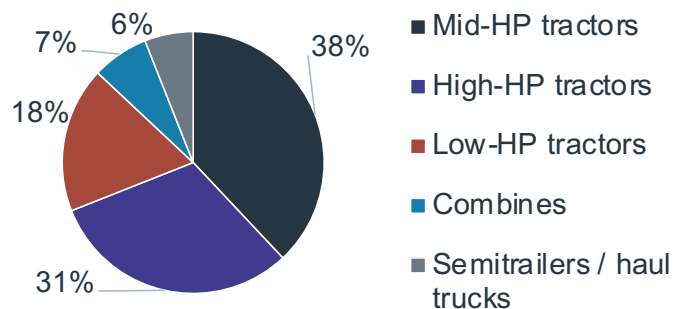
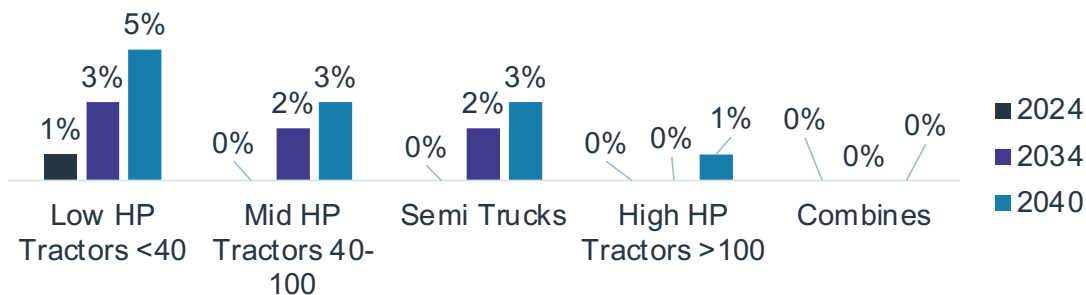
*Scissor lifts and forklifts (not included in the chart) are expected to reach ~100% by 2040

Agriculture: Electrification remains low, with low-medium HP tractors seeing some uptake while high-HP machines and combines stay overwhelmingly diesel

Agriculture Sector HDMO Demand by Equipment, 2024



Agriculture - Equipment wise Electrification Outlook



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Example: John Deere is securing battery leadership, innovating products, optimizing global manufacturing, and driving sustainability to lead the shift to electrification

Battery Leadership



- **Acquired Kreisel Electric in Austria** to secure advanced immersion-cooled battery and charging technology
- Scaling production to more than 2 GWh in Europe and the U.S. to meet rising demand
- Ensures Deere controls the full propulsion system whether powered by engine or battery

Sustainability



- **Company-wide goal to deliver low-carbon and zero-emission propulsion options by 2026**
- Modular battery design supports scaling across different equipment classes and applications
- Positioned to meet global regulatory pressure while improving uptime, reliability, and customer efficiency



- E-Power Tractor Prototype at 130 HP with modular pack (1–5) for flexible runtime and power
- Early electrification focus on **compact tractors, mowers, and utility vehicles where adoption is fastest**
- Hybrid systems bridge the transition for larger horsepower machines facing weight and range limits

Product Innovation



- Low horsepower tractors built in India and Mexico, with kits supplied into the U.S. market
- Mid horsepower tractors manufactured in Germany
- High horsepower tractors produced in the U.S. and Brazil
- **Global production network aligned by horsepower band to support both ICE and electric platforms**

Manufacturing Footprint



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Key takeaways: While electrification progresses in CVL segments, value upsides exist, with combustion engine expected to be the dominant technology in off-highway segment till 2040

Themes	Key Insights
Declining volumetric demand but growing value outlook	- Volumetric demand for CVL is expected to decline in most CVL sectors driven by factors like electrification and shift to lower viscosity premium lubricants - However, shift towards premium lubricant will drive value growth which remains positive till 2040
Higher demand for lower viscosity grades	The demand for 0W, 5W, 10W grades is estimated to increase in all off-highway segments
Lack of regulations in off-highway segment	Although regulation driving electrification exist for the on-highway segment, both US & Canada don't have similar regulations for off-highway sectors => lower impact of electrification in these sectors
Higher electrification in mining	Mining will see higher impact of electrification among the off-highway sectors driven by growth in underground mining and sustainability targets of large mining customers
OEMs driving decarbonization	- Most of the OEMs have interim targets with goals to achieve 100% sales of zero emission equipment by 2040 / 2050 - OEMs have also started collaborating with large customers to test and implement zero emission equipment and will be a key driver for electrification

Implications: Testing the level of “so what” insights most relevant for the audience.
Our angle: What will a management team do with this information

ILMA advantage: Companies most attuned with customer context stand better chance not just to survive but thrive.
Agility + customer centricity + solution-focus = resilient business

ACT

**Translate the Impact =>
Response specific to your
business mix**

**Secure the value upside => Tide
won't carry all boats**

**Beyond the product:
Retain/grow business by
solving for complexity**

WATCH/REFLECT

**Potential partners/alternative routes
to solve for customer needs**

Triggers for electrification pace change => keep an eye

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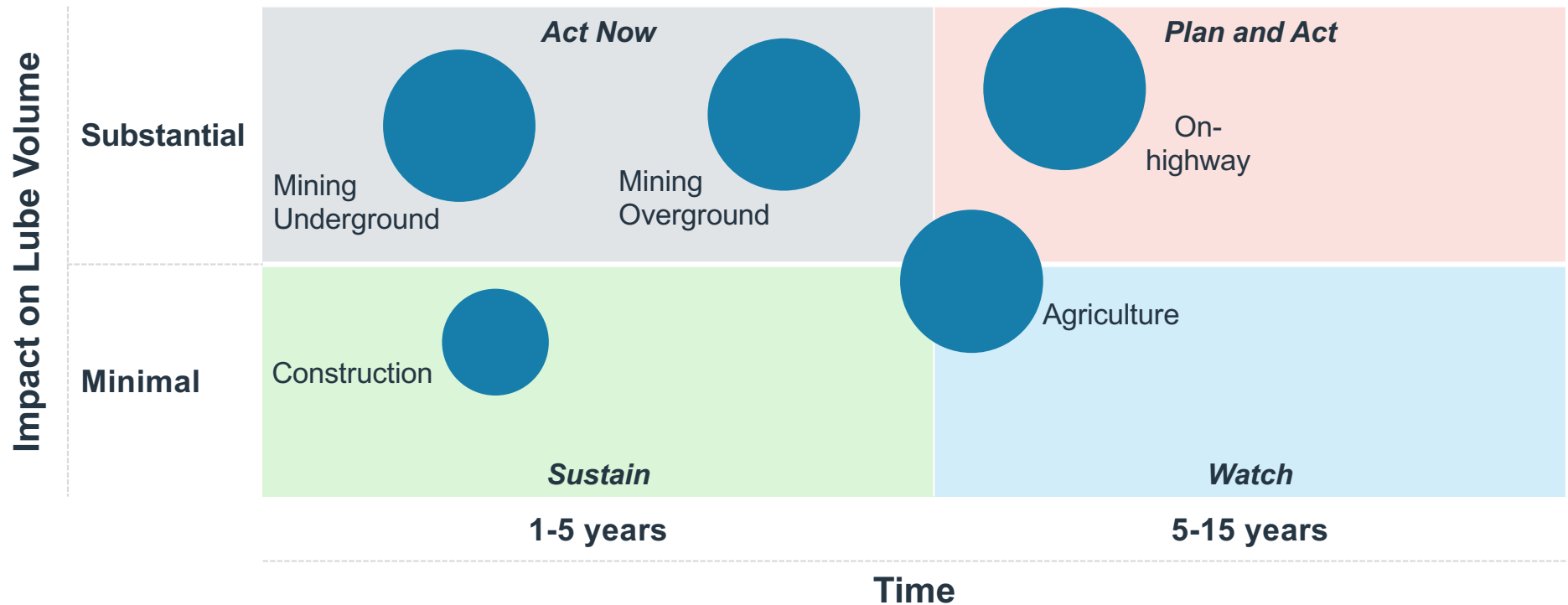
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Let's bring this closer to home: What is on your radar?



Other considerations when doing your analysis: Value and Margin Pool not just Volume Pool