

Surface Transportation Board Rail Energy Transportation Advisory Committee





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Industry Order Activity was Severely Hampered by COVID-19 and Energy Market Collapse





30,000

25,000

20,000

15,000

10,000

5,000

Orders/Deliveries

Freight Car ARCI (Q4 2020)							
Orders	2,704						
Deliveries	3,993						
Backlog	18,111						

Tank Car Activity



Tank Car ARCI (Q4 2020)							
Orders	693						
Deliveries	2,223						
Backlog	16,487						

Industry Deliveries have Declined Since Late 2019

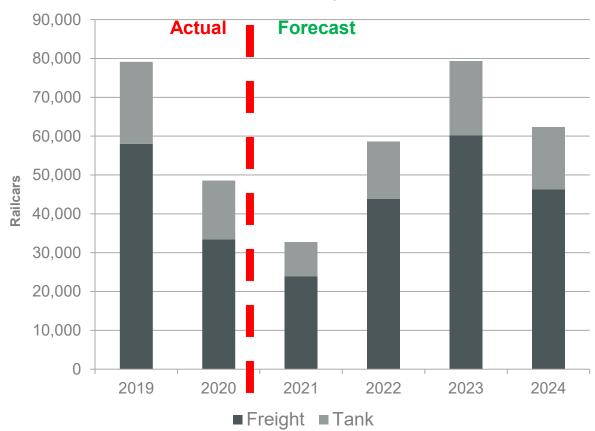
Freight	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Orders	8,119	13,626	13,656	13,942	4,816	7,086	5,655	5,406	2,289	1,064	4,207	2,704
Deliveries	11,143	10,829	8,524	9,933	9,364	10,397	8,773	8,369	5,621	4,183	4,461	3,993
Backlog	38,710	41,007	42,339	45,711	37,624	34,312	28,074	24,977	22,068	19,207	18,950	18,111

Tank	Q1 2018	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Orders	2,229	10,162	11,316	6,013	4,847	4,668	1,660	3,058	3,883	859	1,576	693
Deliveries	1,955	2,242	2,697	3,529	3,807	5,226	5,798	6,358	5,203	4,258	3,492	2,223
Backlog	16,506	24,154	31,473	34,512	35,452	34,915	30,053	26,318	24,262	20,405	18,467	16,487

Railcar Delivery Outlook Expected to Contract

Railcar Delivery Forecast

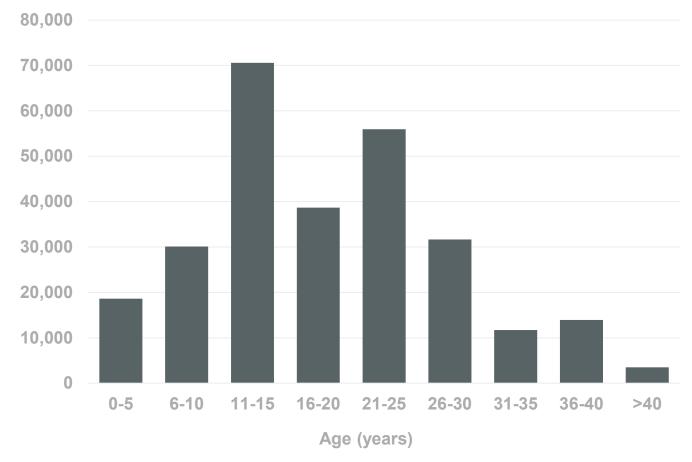
Source: ARCI; FTR



- Limited orders in recent quarters is driving the lower 2021 delivery forecast.
- Freight cars are expected to be the primary driver of deliveries over the next few years.
- Flammable liquid regulations will pullforward replacement demand for next 5 years.
- Tank cars, 3,500-5,500 cubic foot covered hoppers for grain, >5,500 cubic foot covered hoppers for plastics, and intermodal flat cars are expected to support future deliveries.

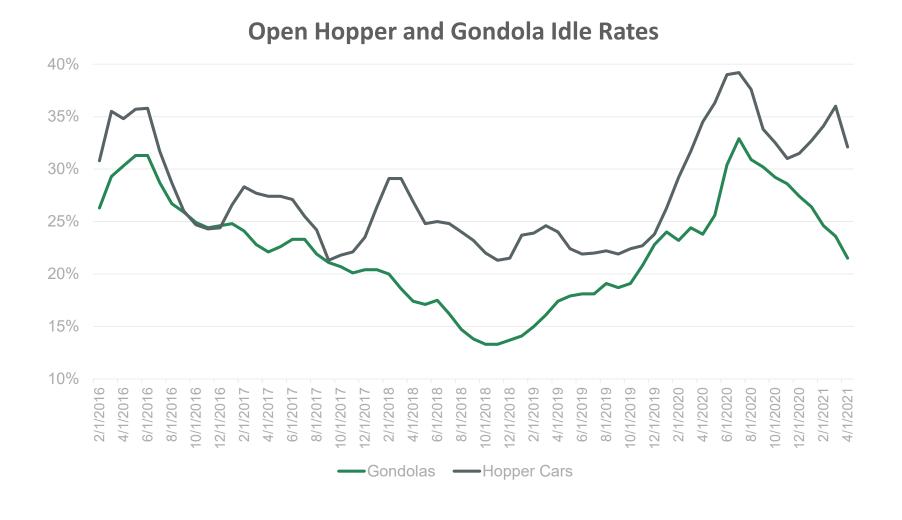
Coal Demand Continues to Decline

Estimated Coal Car Age Distribution Source: UMLER Analysis



- Coal carloads are down 4.1% year-todate through April 3, 2021.
- The railcar fleet servicing coal will see continued attrition in the coming years.
- 28% of gondolas and 33% of open hoppers in the North American fleet are in storage as of March 2021.
- Current Estimated Fleet Sizes:
 - Coal Gon ~98K
 - Coal Hopper ~94K

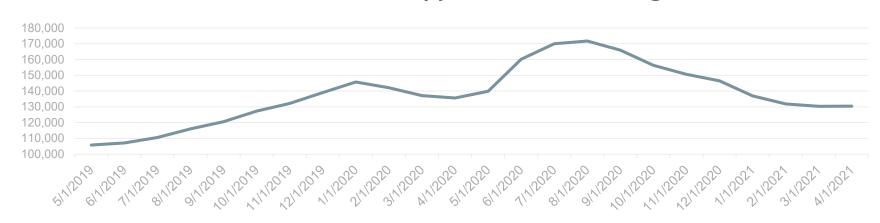
Percent of coal cars in storage rose sharply starting in late 2019



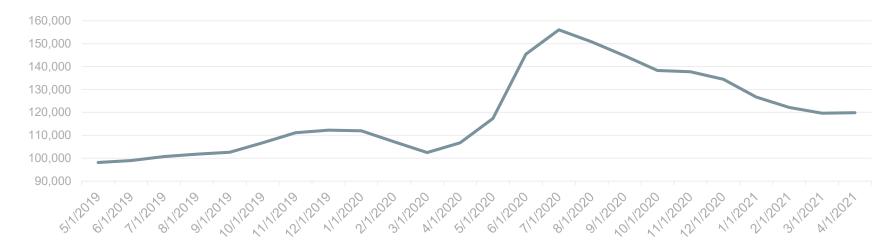
- North American coal carloads are down 4.1% through Week 13 compared to the same time 2020.
- Open hopper storage has recently spiked before starting to return to lower levels while gondola storage has steadily decreased over the last year.

Energy Related Cars Returning to Storage

Covered Hoppers - Total in Storage



Tank Cars - Total in Storage



- Covered hoppers have been coming out of storage, but remain well above historically normal levels, likely due to elevated Small Cube storage.
- Tank car storage has been decreasing consistently since this past summer but remains above prepandemic rates.

Liquefied Natural Gas by Rail

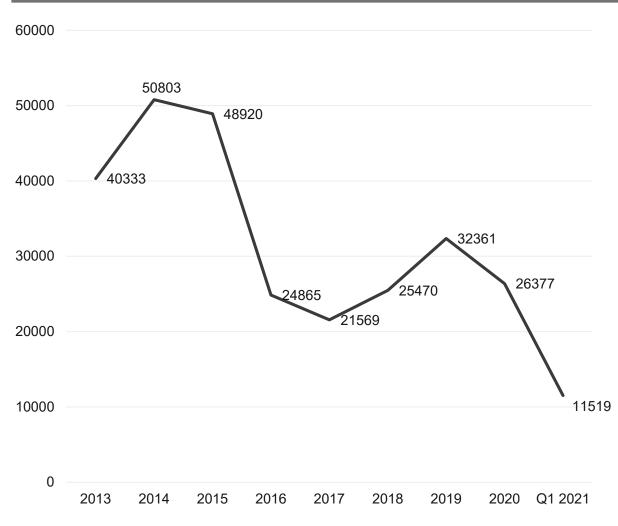
PHMSA, July 24, 2020

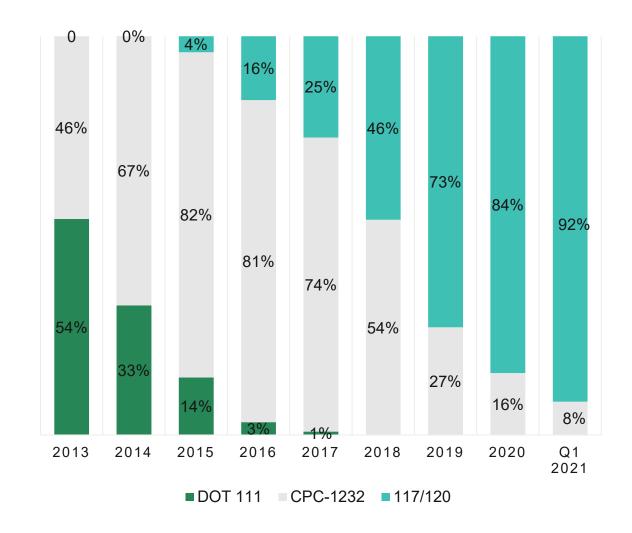
- The Pipeline and Hazardous Materials Safety Administration (PHMSA) issued a final rule authorizing the bulk transportation of liquefied natural gas (LNG) by rail.
- Specifically, the rule permits the bulk transportation of LNG in DOT-113C120W9 (DOT-113) specification tank cars with enhanced outer tank requirements and additional operational controls.
- The final rule complied with Executive Order 13868, "Promoting Energy Infrastructure and Economic Growth," issued in April 2019.

Biden Administration

- The PHMSA final rule was challenged in the D.C. Circuit by several environmental groups and 15 states.
- The Biden Administration indicated its intent early on to review the LNG-by-rail rule.
- At the request of Congress, an ad hoc committee appointed by the National Academies of Sciences, Engineering, and Medicine will review DOT's plans for LNG by rail. The review will last 24-months.
- The full-scale tank car impact testing and analysis of the DOT-113 tank car should be completed by the FRA this summer/fall. These tests should evaluate the performance and crashworthiness of DOT-113 specification tank cars for LNG by rail.

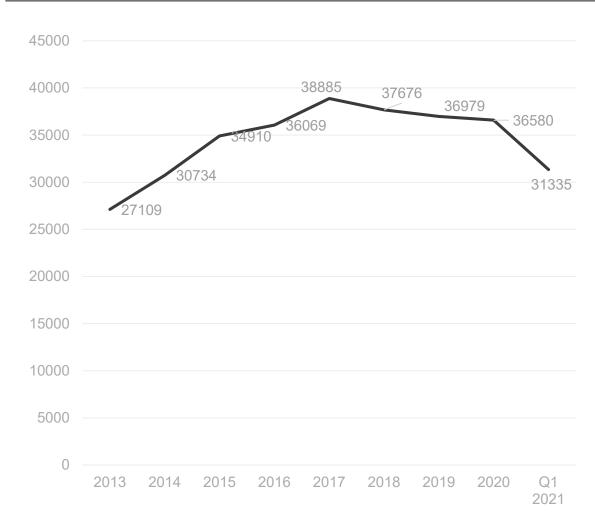
Crude Oil Fleet Size & Composition

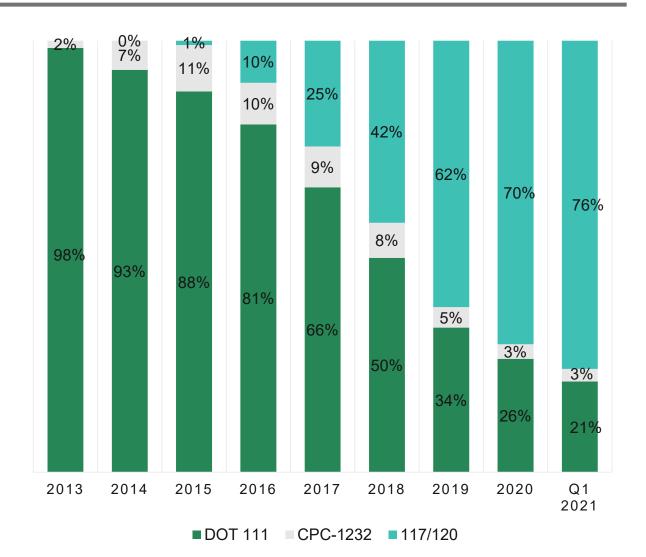




Source: Association of American Railroads

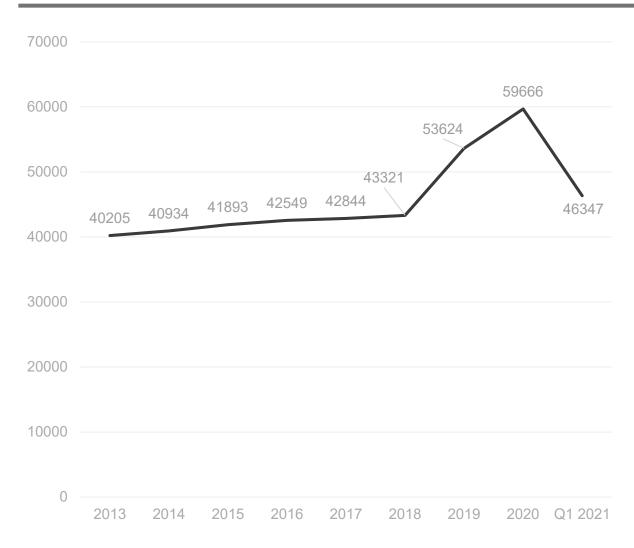
Ethanol Fleet Size & Composition

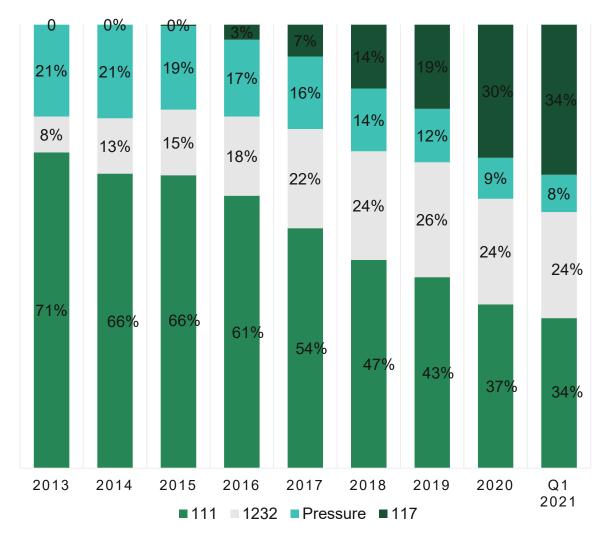




Source: Association of American Railroads

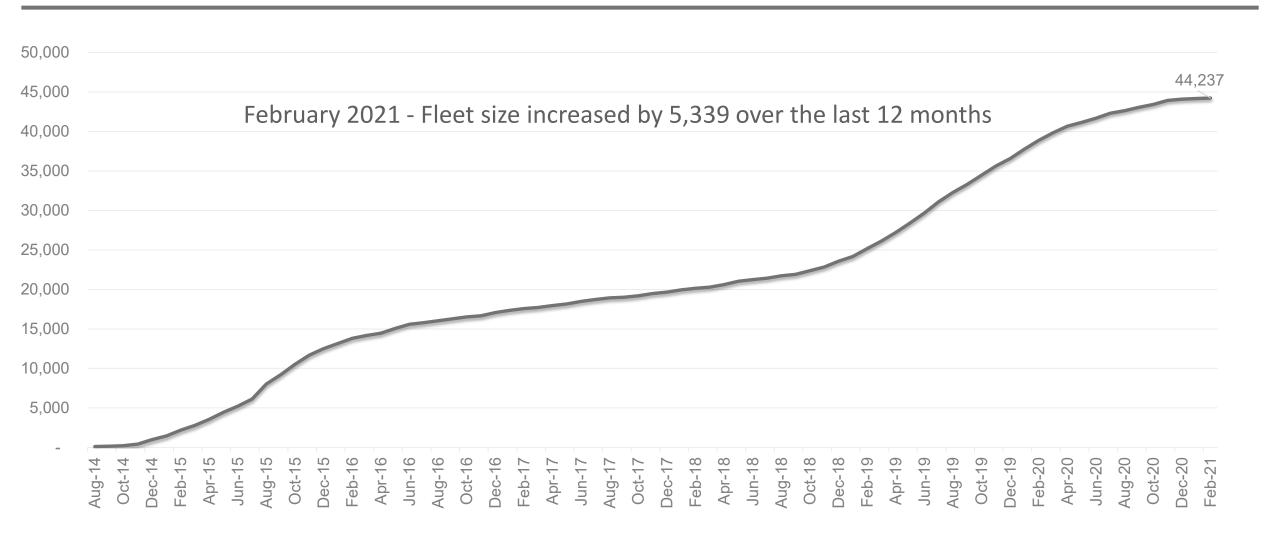
Other Flammable Liquids Fleet Size and Composition



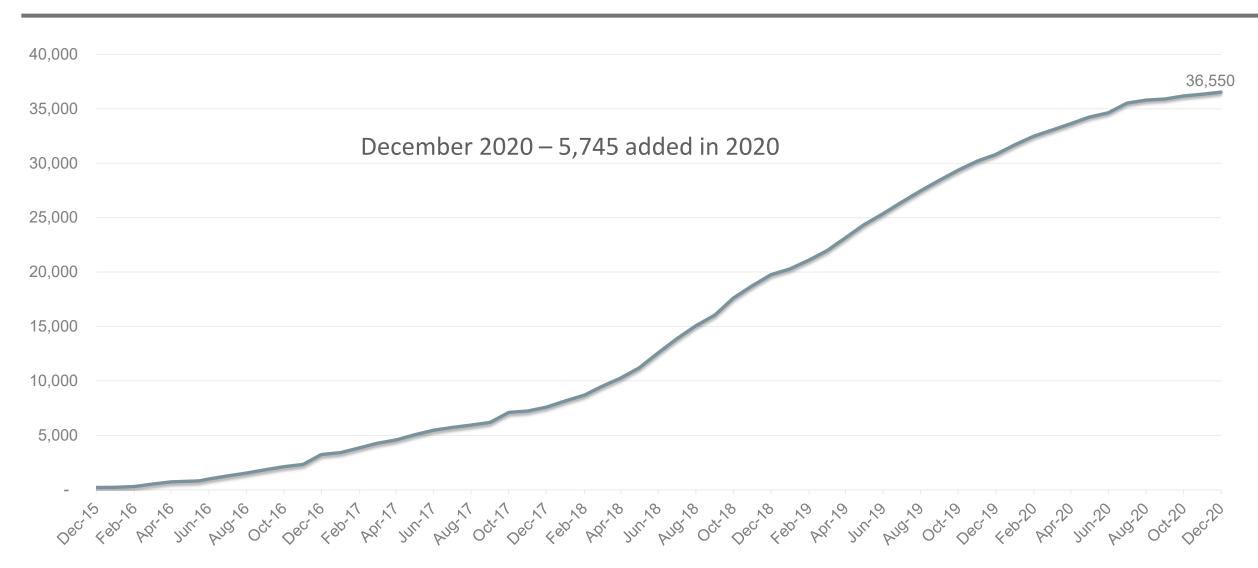


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DOT 117J & DOT 120J Fleet Growth

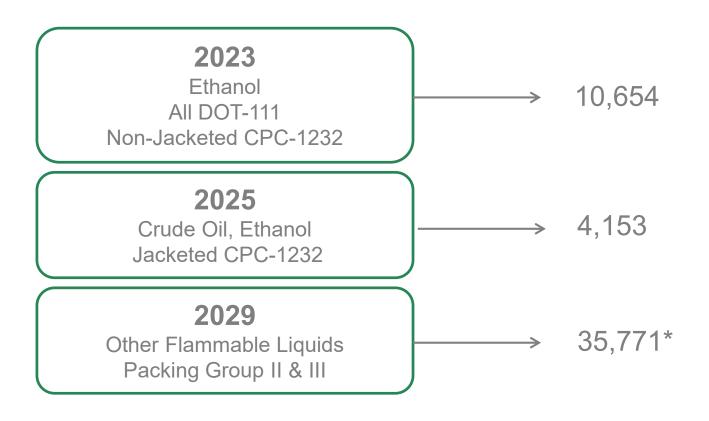


DOT 117R Fleet Growth



Over 59,000 Tank Cars Require Replaced/Retrofit

Impacted Fleets by Compliance Dates



- Based on 4th Quarter 2020 numbers, the number of cars that require replacement to DOT-117J or retrofitted to DOT-117R by service/date.
- **50,578:** The number of tank cars that require replacement or retrofitted in the North American fleet.

*Flammable Liquids, PG I, transported in DOT 111 or CPC-1232 tank cars require replacement or retrofitted by 5/1/2025.

Cars per Month Required vs. Last Month Actual Production

Production	Cars / Month
Cars/Month to Meet Deadlines	815 — 1,146
DOT-117 Production Avg. 2020	607
DOT-117R Production Avg. 2020	485
Total Production 2020 Average	1,092
Surplus Production	(-54) - 277