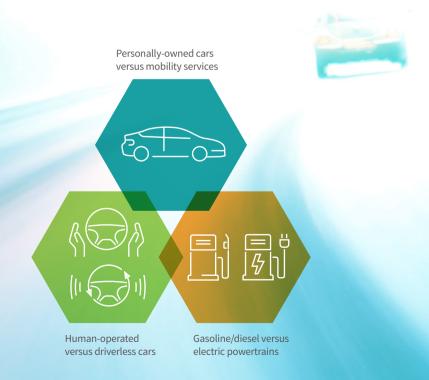


Mobility and Energy Future

Examining key areas of change for the global transportation ecosystem and the implications for the automotive, energy, technology and chemical industries.

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IHS Markit's Mobility and Energy future subscription (MEF) is jointly produced by our Automotive and Oil Markets, Midstream, Downstream, and Chemicals research groups, and draws on the expertise of researchers from across the company. It has a cross-industry client base, addressing correlated trends affecting participants in varied markets:



Automotive Manufacturers and Suppliers

- Changes in car ownership and usage patterns
- Sales and fleet outlooks by powertrain and degree of autonomy
- Continually-updated electric vehicle (EV) sales trends
- Battery supply chain development



Oil & Gas Producers and Refiners

- The pace of non-ICE powertrain adoption, and implications for peak oil and refined product demand timing
- Fuel consumption pattern differences for autonomous vehicles
- Differential regional impacts for refined product demand



Utilities

- Consumer charging behavior and trends in infrastructure investment
- Degree to which transportation drives electric power demand growth
- Impact of new battery technology on stationary storage

Mobility and Energy Future (MEF) offers scenario-based forecasts built on our IHS Markit Automotive databases of light vehicle and medium/heavy vehicle sales and fleets. Our long-term outlooks identify the market implications for the automotive and energy sectors, and highlight the key drivers of the new mobility paradigm, including new technologies and policies.



Understand Competing Technologies and Business Models

- Evolving battery technologies
- Autonomous vehicle sensor arrays and processing systems
- Economics of "new mobility" transport options



Monitor Policy Developments

- Fuel efficiency standards and regulation of particulate emissions
- Subsidies and tax credits for vehicles and infrastructure
- City-level moves to ban powertrains/vehicles, impose congestion charges, ZEV mandates



Assess Market Impacts Quantitatively

- Sales and fleet outlooks globally by powertrain
- Vehicle miles traveled by personally owned vehicles and ride hailing fleet vehicles
- Decline in gasoline and diesel demand by region
- Impact on chemical materials and feedstocks

Service Deliverables

Monthly automotive sales for 11 key markets including China, US, Germany, Italy, Spain, France, Canada.

- Data on total LV sales, with battery electric and plug-in hybrid subtotals
- Analysis and implications

ZEV Watch report

- New biannual deliverable offering a comprehensive assessment of the five-year outlook for adoption of zero-emission LVs and MHVs—including those fueled by electricity and hydrogen
- The report also offers assessments of the ZEV value chain—including charging and batteries—as well as biofuels.

Light Vehicle Long term forecasts in two scenarios

- Global vehicle miles traveled analysis
- Detailed channel analysis (personal or ride hailing) by key market
- Detailed channel analysis of autonomous technology adoption
- Sales outlooks to 2050 by power train by region and country
- Fleet outlooks to 2050 by powertrain by region and country
- Fuel economy standards by region and country
- Transport fuel demand by region and country (battery electric, plug in electric, natural gas, fuel cell, ethanol, gasoline, diesel) to 2050

Medium and Heavy Vehicle (MHV) long-term forecasts in two scenarios

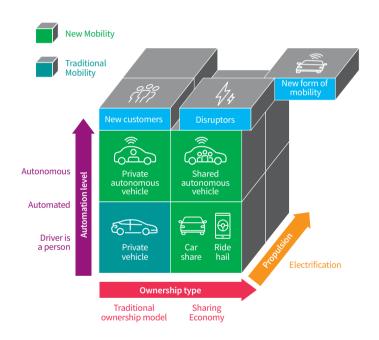
 Outlooks for fleet and sales by powertrain in China, US, Europe, Japan

- Fuel economy assumptions and fuel demand by market
- Total cost of ownership analysis
- Coverage of autonomous technologies

Periodic analysis of key developments and trends

- Emissions and other regulatory policies
- Penetration of autonomous technologies, new mobility business models, and new powertrains
- Mobility demand modeling and VMT trends
- Technological developments in new mobility technologies

Mobility and Energy Future service members also receive individual access to analysts and invitations to select member-only events including regular webcasts



Pioneering Analysis of Mobility

MEF traces its origins to the pioneering Reinventing the Wheel (RTW) one time study, developed in 2016, which integrated IHS Markit capabilities across our automotive and energy segments to deliver a uniquely comprehensive picture of the future of light vehicle mobility and its implications for related industries. Clients requested continuing analysis of the rapidly-changing mobility space, and the Mobility and Energy Future subscription service was launched in 2017.

New medium and heavy vehicle (MHV) content was added to the service in 2019. Derived from the larger 2018 Reinventing the Truck one time study, the incorporation of this coverage enables us to provide clients with an integrated view of diesel and gasoline demand for the road transportation segment in our two core scenarios, and to consider related impacts of new mobility technologies and business models

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About IHS Markit

IHS Markit (NYSE: INFO) is a world leader in critical information, analytics and expertise to forge solutions for the major industries and markets that drive economies worldwide. The company delivers nextgeneration information, analytics and solutions to customers in business, finance and government, improving their operational efficiency and providing deep insights that lead to well-informed, confident decisions. IHS Markit has more than 50,000 business and government customers, including 80 percent of the Fortune Global 500 and the world's leading financial institutions. Headquartered in London, IHS Markit is committed to sustainable, profitable growth.

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