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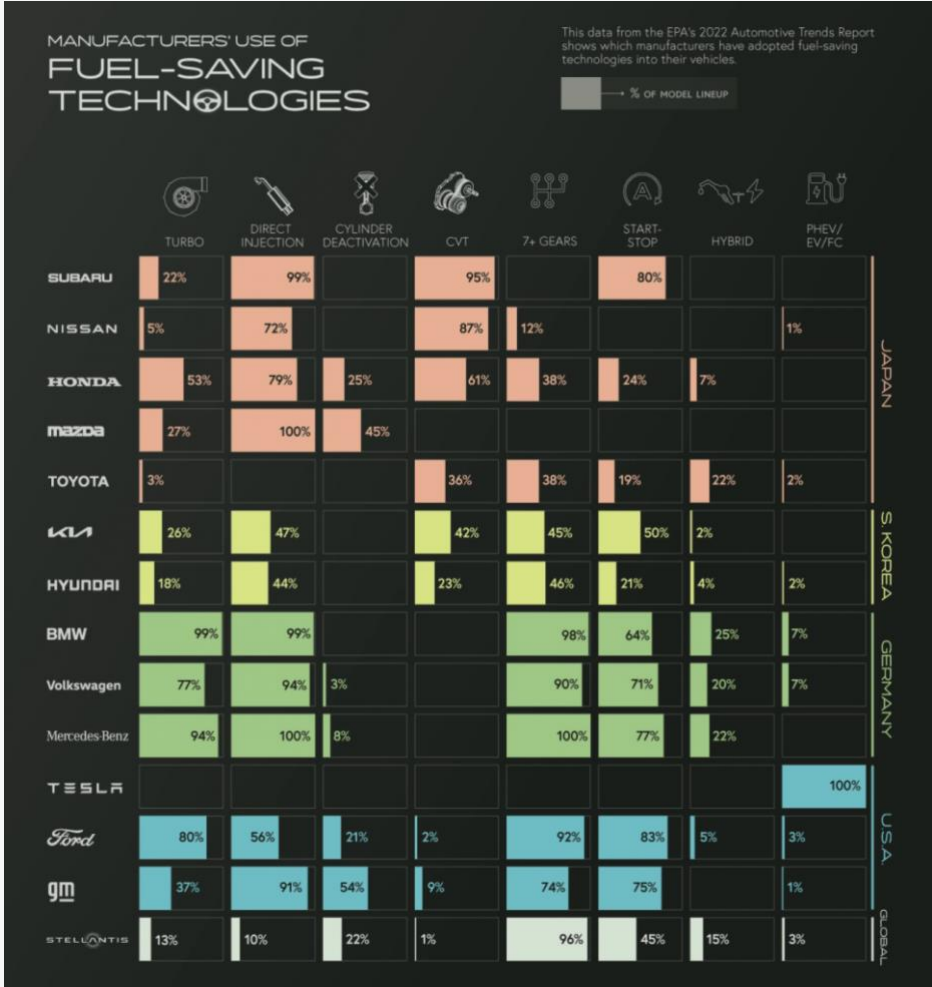


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Various fuel-saving technologies have been developed over the past few decades, including direct injection, cylinder deactivation, and auto start-stop.

The EPA's 2022 Automotive Trends Report includes data that shows which automakers have adopted which technologies.

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Automaker	Turbo	Direct Injection	Cylinder Deact.	CVT	7+ Gears	Start-Stop	Hybrid	PHEV/EV/FC
Subaru	22%	99%	0%	95%	0%	80%	0%	0%
Nissan	5%	72%	0%	87%	12%	0%	0%	1%
Honda	53%	79%	25%	61%	38%	24%	7%	0%
Mazda	27%	100%	45%	0%	0%	0%	0%	0%
Toyota	3%	0%	0%	36%	38%	19%	22%	2%
Kia	26%	47%	0%	42%	45%	50%	2%	0%
Hyundai	18%	44%	0%	23%	46%	21%	4%	2%
BMW	99%	99%	0%	0%	98%	64%	25%	7%
Volkswagen	77%	94%	3%	0%	90%	71%	20%	7%
Mercedes-Benz	94%	100%	8%	0%	100%	77%	22%	0%
Tesla	0%	0%	0%	0%	0%	0%	0%	100%
Ford	80%	56%	21%	2%	92%	83%	5%	3%
GM	37%	91%	54%	9%	74%	75%	0%	1%
Stellantis	13%	10%	22%	1%	96%	45%	15%	3%

Asia

Direct injection gasoline engines (GDI) and continuously variable transmissions (CVT) are big advocates among Japanese automakers.

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The GDI engine injects fuel directly into the combustion chamber at high pressure, resulting in greater fuel efficiency and lower emissions than the traditional port injection method.

In CVT transmissions, pulleys are used instead of gears to improve fuel efficiency. They are best suited to smaller engines with lower horsepower, which may explain why Japanese automakers have adopted them.

In contrast, South Korean automakers adopt a greater number of technologies, but to a lesser extent for each.

Germany

The Germans car makers have a lot of expertise in building combustion engines, thus, turbocharging and direct injection are common features on most of their vehicles.

Likewise, they have heavily embraced high gear count transmissions, a heavy and complex system that allows better fuel economy and acceleration.

Additionally, German automakers are tied with Toyota in terms of hybrid adoption and use the auto start-stop feature in many of their vehicles.

American & Others

Turbocharging and direct injection, as well as 7+ gear transmissions, are among the advanced technologies used by Ford and GM. Active Fuel Management (AFM) is another feature that GM offers. This system allows half of the cylinders to be turned off during light driving, which saves fuel. The latest technology was implemented in 54% of GM cars.

With the exception of the 7+ gear transmission, Stellantis, a merger of Italian-American Fiat Chrysler and French Peugeot, has not widely adopted many technologies.

As a pure electric automaker, Tesla does not use any of the aforementioned technologies.