

Claim and Counterclaim

The real impact of car CO2 regulation on jobs

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Summary

The issue of jobs has created much heated discussion during the debate about how ambitious post 2020 car CO2 regulations should be. This paper seeks to shine light on the reality. It shows that unquestionably:

1. A shift to fuel efficient and zero emissions vehicles is good for jobs overall as less oil is consumed and more money spent in more employment intensive parts of the economy. Estimates range for 100-200k jobs created in 2030.
2. A shift to more fuel efficient cars including hybrid, plug-in hybrid and fuel-cell cars is good for jobs in the automotive industry as these vehicles have more parts.
3. A shift to electric cars is good for jobs economy wide but the effect on employment in the automotive sector depends on the mix of battery electric cars to plug-in hybrid and fuel-cell models being built. This is because battery electric models have around 17% fewer parts.

For automotive jobs best and worst cases are estimated between about +6% to -4% for a 40% cut in new car emissions; and +4% to -1% for a 30% cut.

1. Background

The battle over 2030 car CO2 regulations is heating up and so are the claims and counterclaims about the impact on jobs. The European Parliament voted on the 3rd October supporting a 20% and 40% reductions in 2025/30 including a penalty for carmakers failing to achieve a 35% sales target for low and zero emissions vehicles in 2030. It also introduced real world checks on vehicle emissions to stop the industry gaming laboratory tests.

On the 9th October Environment Ministers meet to thrash out a deal between EU member states. There is a majority in favour of 40% if the Austrian Presidency of the Council was to support this. But instead they have proposed a more modest 35% for which there is a majority of member states. Following the ambitious proposal from Parliament earlier this week, the car industry, unions and Germany (that supports only a 30% cut) have been pressing the Governments of France, Italy, Spain, Poland and Portugal to weaken their position. If they succeed there will be a blocking minority against a 35% cut and likely delays finalizing the legislation as the industry try to prevent a decision within the term of this Parliament.

At the heart of the arguments is a heated debate about the impact of jobs of a shift to plug-in cars - so what are the facts? A recent paper by [Cambridge Econometrics](#) has helped to explain some of the reasons for the different claims.

2. A shift to fuel efficient and zero emissions vehicles is good for jobs overall

The Commission Impact Assessment show that if we buy less oil this is good for jobs across the EU economy. The EU [consumer survey](#) found on average 6.4% of household expenditure is spent on fuel and

maintenance of personal transport and cutting this cost frees up money to be spent in other parts of the economy that employ more people. Oil refining and distribution only employs around [6 people](#) for every \$1 million spent - considerably less than the EU average of 24. So if drivers have more fuel efficient (or better still electric cars), they buy less (or no) fuel and have more money to spend in sectors of the economy that employ many more people.

A study by [Cambridge Econometrics](#) (endorsed by BMW, Nissan Renault, trade union Industriall, and the consumers organisation BEUC) estimates 206 thousand jobs are created economy wide by 2030. A recent Commission paper also shows more ambitious regulation also creates more jobs. whilst the impact upon the auto-industry is small and can easily be accommodated through natural turnover. The Commission estimate by 2025, 900 thousand people will retire from the automotive industry.

% cut	-30%	-40%	-50%	-75%
Cumulative jobs created (imported batteries)	46,000	69,000	51,000	69,000
Cumulative jobs created (with battery manufacturing)	69,000	92,000	101,000	221,000

Created jobs accounts for jobs lost in automotive. If the market is significant cells are likely to be manufactured close to market so the cells, battery packs and cars will be manufactured in Europe to reduce supply and exchange rate risks.

3. A shift to more fuel efficient cars is good for jobs in the automotive industry

More fuel efficient cars, including hybrid, plug-in hybrid (PHEV) and fuel-cell cars (FCEV) contain more parts creating employment. The unpublished [ELAB 2.0 study](#) estimates that PHEVs require 19% more employment than a conventional car. For employment in the automotive industry this is the best option as the cars continue to have engines, transmission and after treatment systems. The benefits in terms of employment economy wide are better than no change but lower overall than a shift to electric cars as more oil is bought.

4. A shift to electric cars is good for jobs economy wide; the effect on employment in the automotive sector depends on the sales mix

Economy wide a shift to electric cars is good for jobs as less oil is consumed. The effect on automotive jobs will depend on the share of battery electric vehicles (BEV) to plug-in hybrid models (PHEV). An FTI study for ACEA quotes Mercedes that estimates BEVs require 80-90% less employment to produce; the previous section showed a similar level of increase in jobs for PHEV and FCEV.

The Commission non paper has estimated the job losses in automotive. For a 40% reduction it equates to 12 thousand less jobs (0,5%). By 2025 around 900 thousand automotive workers are anticipated to retire and this number can easily be accommodated through natural turnover (table over page).

The [unpublished](#) ELAB 2.0 study is especially pessimistic about job losses in the automotive industry. ELAB 2.0 suggest job losses of 11% or 67 thousand employees by 2030 (for a scenario with 15% PHEV and 25% BEV - similar to a level of penetration in plug-in vehicles anticipated for the European Parliaments 40% target). However, the ELAB 2.0 study also accounts for productivity improvements in automotive manufacturing that will also happen by 2030 and counts this lost employment together with that arising directly from a shift to electric vehicles. Productivity improvement account for two-thirds of the overall job

losses suggesting the loss in jobs through the shift the electric vehicles is around 3.6% or 22 thousand, approximately double the Commission estimate.

Cut	30%	40%	50%	75%
Absolute number of jobs lost in automotive	-2,000	-12,000	-26,000	-92,000
Percentage	-0.10%	-0.50%	-1%	-3.70%

The ELAB 2.0 study assumes the employment intensity of a BEV is 62-66% that of a gasoline and diesel engine car respectively. But once the contribution of productivity improvements is eliminated the study suggests an electric car takes about 80% of the employment of an engined car. This is a reasonable assumption as a [UBS study](#) states there are 17% less parts are required in a BEV compared to an ICE vehicle and Mercedes make a similar estimate. Given that Elab 2.0 also estimates a PHEV creates 19% more jobs it is reasonable to conclude with an equal share of BEV and PHEV / FCEV models the impact on automotive jobs is close to zero.

5. Conclusions

Based on the assumptions above, the table below estimates the impact upon automotive jobs for BEV and PHEV dominated scenarios for 30 and 40% reduction targets in a best and worst case. It shows the likely impact on automotive jobs is modest and the most likely case minimal change. For a 40% reduction automotive job effects are between +6% to -4%. This equates to +210 thousand to -140 thousand.

Target	Best case PHEV dominated	Balanced Case BEV=PHEV share	Worst case BEV dominated
-30%	25% PHEV Jobs 104%	10% BEV & PHEV Jobs 100%	15% BEV Jobs 99%
-40%	30% PHEV Jobs 106%	17% BEV & PHEV Jobs 100%	19% BEV 96%

Assumes ICE 80g/km; PHEV 25 g/km; BEV job intensity 0.8; PHEV 1.2; 100% indicate no change in jobs

The real risk to jobs is that in the future electric vehicles would be supplied from China and not built in the EU. Last year European carmakers invested [seven times more](#) in electric vehicle manufacturing in China than at home. Carmakers' intention is clear, keep selling diesel cars in Europe for as long as possible. In the meantime it will meet the limited EU demand for electric cars with vehicles largely made in China. It is a strategy focused on maximising profits and will be disastrous for the global competitiveness of the European industry and the creation of the jobs of the future in Europe.

Overall it is clear more ambition in CO2 cuts leads to more economy wide jobs. In the automotive sector the net impact will depend upon the share of PHEV to BEV vehicles but overall effects are likely to be small.

Further information

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