



Research Fund for Coal and Steel



**Gears with top in-service performance
developed for
hybrid and electric vehicles**

Deliverable D7.1 (D15)

Project Overview (State of the Art, problem,
proposed approach and outcome)

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PUBLISHABLE SUMMARY

To improve BEV gear efficiency, the main trend is to reach speeds even higher than 15,000 rpm. Preliminary tests have shown that the gears of actual EV, produced through the current combination of steel and carburizing process, experiment an exponential increase of fatigue failures and scuffing problems for speeds higher than 8,000 rpm. Therefore, a new production route is required to ensure reliability of the new generation of BEV gears.

The main goal of TOPGEAR project is to give a solution to this challenging market demand. The innovative combinations of steels and surface hardening techniques proposed in the project are expected to lead to an alternative manufacturing route, through which the new generation of gears for future HEV/EV, which must work at 15,000 rpm without fatigue and scuffing problems, can be produced.