



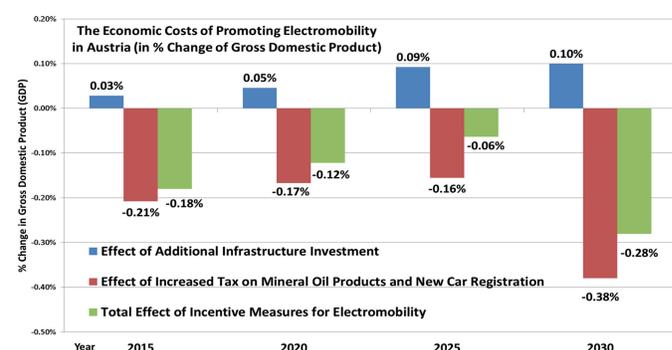
# DEFINE

Development of an Evaluation Framework for the Introduction of Electromobility



[www.ihs.ac.at/projects/define](http://www.ihs.ac.at/projects/define)

## >> A MODEL-BASED EVALUATION FRAMEWORK FOR ELECTROMOBILITY <<



## MAIN RESULTS

- Economic costs and benefits of an increased penetration of electromobility for Austria, Germany and Poland.
- Scenarios for the market penetration of electromobility until 2030.
- Effects of electromobility on the electricity system for Austria and Germany for different scenarios for 2020 and 2030.
- Emission reduction potential of electric vehicles.

## PROJECT DATA

| Funding/€ | Total cost/€ | Duration  |
|-----------|--------------|-----------|
| 1.022.897 | 1.036.815    | 32 months |

| Partners |   |
|----------|---|
|          | Institute for Advanced Studies, AT   Environment Agency Austria, AT<br>Vienna University of Technology Institute of Energy Systems and<br>Electrical Drives, AT   German Institute for Economic Research (DIW<br>Berlin), DE   Oeko-Institut - Institute for Applied Ecology, DE<br>Center for Social and Economic Research, PL |

## PROJECT CONCLUSION

The analysis of the overall economic and systemic effects of an increased market penetration of EVs requires a comprehensive approach. Therefore, the aim of DEFINE was an estimation of costs and benefits in an analytical framework that suits the complexity of the matter and explicitly relates electromobility to the energy system, environmental effects and household behaviour. As the economic core of the evaluation framework, the project further developed and extended the macroeconomic model MERCI. Model results for Austria show that e-mobility can make a clear contribution to the reduction of CO<sub>2</sub> emissions in the traffic sector under supportable economic costs. Possible achievable potentials of EVs were investigated in two scenarios. The expected CO<sub>2</sub>-emission reductions in the BAU-scenario would amount to 1 million tonnes and in the Electromobility+ scenario to 1.2 million tonnes. The power and heat system simulation model (HiREPS) for Austria and Germany was deployed to analyse the effects of different charging strategies and types of user behaviour. The analysis shows high potential for reducing costs through the implementation of cost-based market-led infrequent controlled charging. DEFINE analysed the market potentials of EVs as well as possible future interactions with the German power system up to 2030. Based on the analysis, a set of recommendations for policy makers was worked out. Moreover a stated preference study on the adoption of alternative fuel vehicles was carried out among adults who are intending to purchase a passenger car in Poland, which is the first study of this kind in the CEE region.

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