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SÉMINAIRE ÉNERGIE – ENVIRONNEMENT
Conférences 2021-2022

State of the art of electric mobility: CO_2 emissions & contribution to the energy transition

Martin Rüdisüli
EMPA

Jeudi 4 novembre 2021 à 16h00

Cette conférence aura lieu uniquement via Zoom – pas de suivi en présentiel !

Lien pour la diffusion en direct avec Zoom :
https://unige.zoom.us/j/65489922494

ID de réunion : 654 8992 2494
Code secret : 166760

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L’orateur

Martin Rüdisüli is a scientist at Empa's "Urban Energy Systems" laboratory since 2017.
He started his studies of environmental engineering at ETH Zurich in 2002 and graduated in 2007.

He did his PhD in the thermal process engineering group at Paul Scherrer Institute (PSI) investigating hydrodynamic properties of fluidized beds in the Project "Methane from Wood" until 2012.

His main focus of research is to investigate the impacts of energy production, consumption and storage on the whole energy systems in terms of electricity, heat, and fuels.

La conférence

Electricity-based mobility (EBM) refers to both battery electric (BEV) and other vehicle technologies that use electricity as their primary source of energy. These are, for example, vehicles that run on fuels produced from electricity such as hydrogen or synthetic natural gas (SNG).

In principle, EBM is less harmful to the climate than technologies based on fossil fuels such as gasoline and diesel. However, this presupposes that above all excess, renewable electricity is used. If, on the other hand, electricity from fossil power plants is used, the climate friendliness of EBM is reduced.

While BEVs are highly efficient in their drive system (tank-to-wheel), their fuel (electricity) can only be stored to a limited extent. On the other hand, vehicles with synthetic fuels have a significantly lower drive efficiency, but their fuels can be stored much longer (seasonally) and thus they are much more flexible with regard to the choice and CO_2 load of the electricity used.

In a study based on data and models, EMPA investigated whether and under what circumstances this greater flexibility of synthetic fuels can compensate for the lower drive efficiency and what role future energy storage and sector coupling will play in this.