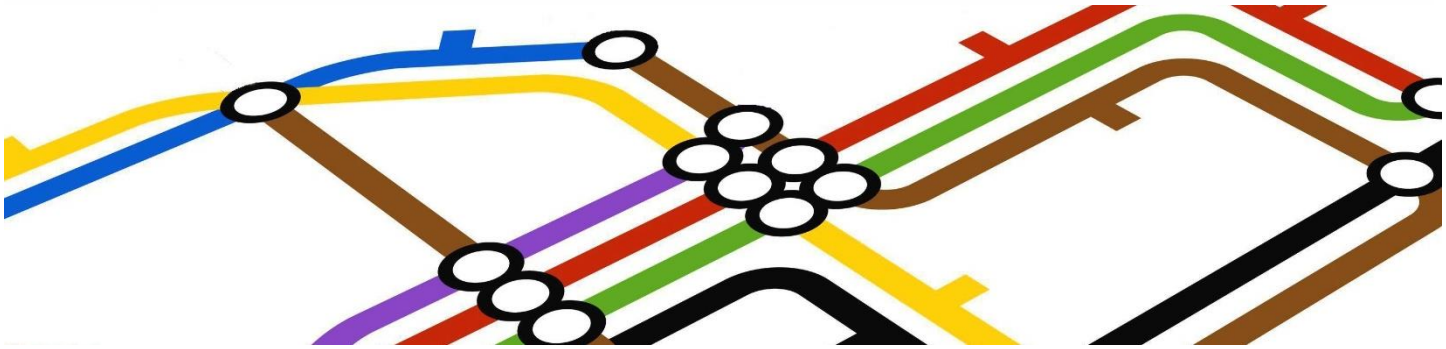
sccer mobility

Swiss Competence Center for Energy Research
Efficient Technologies and Systems for Mobility



# Newsletter

No. 16 / July 2020

Dear Reader
We are pleased to present the latest SCCER Mobility news to you. This issue communicates major advances and events of our research platform. Enjoy reading!

## News & Highlights

### SWEET: First Call for Proposals

SWEET (SWiss Energy research for the Energy Transition) consortia and projects will be selected in a series of competitive calls for proposals. The first call with the guiding theme of "Integration of Renewables into a Sustainable and Resilient Swiss Energy System" is open until 12 October 2020.

Read more


### Key performance indicators of the Swiss mobility system

Research activities within the SCCER Mobility network constitute different solution pathways that could promote the sustainable transition of the Swiss mobility system. In order to evaluate the potential relevance of these research directions, it is important to define key performance indicators. The Learning Lab – Future Transport Systems just finalized this systematic assessment.

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## Carculator: a new online tool

Decision support for car buyers: Researchers at the PSI have developed a web tool called the Carculator that can be used to compare the environmental performance of passenger cars in detail. The program determines the environmental balance of vehicles with different size classes and powertrains, and presents the results in comparative graphics.

Read more


## SCCER Mobility Mission Report

SCCER Mobility recently completed a Mission Report identifying and outlining important topics for mobility research in Switzerland post 2020. With this report, SCCER Mobility draws on 7 years of experience to help guide future transport research towards reaching the goals of the Swiss Energy Strategy 2050. The report reviews the goals, challenges, international boundary conditions as well as newest developments in the field.

Read more

## Environmental impacts of passenger cars

What are the environmental impacts of passenger cars with different powertrains today and in the future? In a study, PSI conducted new analyses to answer this question. They are based on lifecycle assessment, which includes the production, operation and disposal of the car itself as well as the supply of the different energy carriers: gasoline, diesel, gas, electricity and hydrogen. A new fact sheet published by EnergieSchweiz summarizes important findings.

Read more

More news highlights

# MAS | CAS ETH "Future Transport Systems" News

## Apply now and start in the spring semester 2021!

The application window for the MAS program and the CAS "System Aspects" are open now until 30 November 2020. "The MAS provides a broad overview of the diverse aspects of the mobility system and of technological potentials and teaches basic methods for developing business models. The CAS modules are ideal for deepening the knowledge acquired and for determining which topic one would like to focus on in the MAS thesis", says Wolfgang Kling, Project Manager at BLS AG and graduate of the program.

Read more


### First online MAS thesis defense

On 7 April Luca Olivieri defended his MAS thesis successfully. Congratulations! Due to the circumstances, the presentation took place remotely. In his thesis work, Luca Olivieri investigated how a pilot project for independent parcel delivery stations in the City of Basel can be transformed into a cooperative business model. We look forward to the next graduating class in spring 2021.

## Upcoming events

### SCCER Mobility Annual Conference 2020: new date!

The SCCER Mobility Annual Conference has been postponed to **23 November 2020** at the Empa Academy. As 7 years of SCCER Mobility slowly draw to an end, we invite you to this conference to present a synthesis of the competence center, to review the most relevant research results of each capacity area and conclude with an outlook on important future research topics. As in previous years, there will be keynotes, poster sessions and the Best Poster Award. The realization and format of the event will depend on the coronavirus situation. Stay tuned for further details here!

**More upcoming events**

## SCCERs

biosweet
Swiss Competence Center for Energy Research

### Registration open! Biomass to Energy in Switzerland: Achievements and perspectives

The SCCER BIOSWEET is pleased to announce that its 2020 Annual Conference will be held on 10 September 2020 at Centre Général Guisan, Pully (near Lausanne). This will be the final conference of the SCCER, an occasion to wrap up the numerous achievements of our researchers and share outlooks for the future of bioenergy in Switzerland. The conference will be held in partnership with IEA Bioenergy Task 37 (Biogas). Find out more

## SCCER Mobility Glossary

This section intends to widen the common ground between all SCCER Mobility partners. Contributions from our members are welcome. To make suggestions for this section, please contact the Management Office.

**Non-fossil liquid hydrocarbon fuels** have the potential to contribute to the decarbonization of the transport sector, in particular for long-haul and heavy-duty transport like shipping and aviation, which require high energy densities. They can be produced from biomass (biofuels), from electricity and captured $CO_2$ (e-fuels) or via thermochemical processes from concentrated solar power and captured $CO_2$ (solar fuels).

**Biofuels** can be generated from certain crops, also termed energy crops such as rapeseed, or from organic waste from agriculture, industry, households or other sectors. Though widely debated, biofuels can be low-carbon as crops raised for this purpose fix $CO_2$ from the atmosphere to grow. The amount of $CO_2$ incorporated into biomass must compensate all greenhouse gas emissions related to planting, harvesting and processing for such fuels to be rated as carbon-neutral. Besides its contested efficacy for decarbonization, there are numerous other issues related to the production of biofuels including the "food versus fuel" discussion, deforestation, soil erosion and impacts on biodiversity and water resources among others.

**E-fuels** is the term used for energy carriers that are produced via $H_2$ electrolysis and subsequent methanation (or other synthesis processes) with $CO_2$ from different sources. Such fuels can be low-carbon or carbon-neutral if electricity for electrolysis comes from renewable sources (e.g. wind and solar) and $CO_2$ is sequestered from the atmosphere through carbon capture using low-carbon electricity and heat. However, their production has a low energy conversion efficiency and requires large amounts of carbon-neutral electricity to contribute to combating climate change.

**Solar fuels** are similar to e-fuels as they also require captured $CO_2$, ideally from direct air capture. They differ in that concentrated sunlight is used as the energy source to induce a thermochemical reaction whereby $H_2O$ and $CO_2$ are converted to higher organic compounds. Solar radiation is concentrated by mirror arrays and fed into a reactor, where the thermochemical reaction takes place. In a first step this produces synthetic gas, which is then further processed into liquid fuels. Solar fuels promise higher production efficiencies in the long-term, but currently have a lower technology readiness level than the other two types of synthetic fuels.

## Quiz

What key performance indicators were applied to evaluate SCCER Mobility research activities in a recently published report? The first 10 people to send the correct answer to Pascal Sonder will enter the final drawing and have a chance to win (e-mail subject: QUIZ).

Solution of the previous quiz: Participants of the Traffic4Cast competition are challenged to predict traffic flow volumes, heading and speed on whole city maps looking 15 minutes into the future. The winner was Giacomo Pareschi, doctoral student at ETH Zurich. Congratulations!

This information is provided by the SCCER Mobility Management Office. Our newsletter is issued 4 times per year. If you have information that you would like to share, please contact Kirsten Oswald.

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