



# eFuel Alliance **information brochure**

*eFuels: climate-neutral  
synthetic fuels*

# A successful energy transition is only achievable with eFuels:

For large parts of the passenger car and commercial vehicle stock, the goals of the energy transition – security of supply, sustainability and affordability – can be achieved most efficiently with eFuels. In addition, there is no viable technical alternative to climate-neutral synthetic fuels in air and sea transport and heavy goods transport.

## What are eFuels?

*Liquid, storable, renewable electricity!*

eFuels are climate-neutral synthetic fuels produced from renewable energy sources. For that only electricity generated from solar or wind, water and carbon dioxide (e. g. out of the air) are required. Thus, eFuels can significantly contribute to the climate protection targets in the transport and building

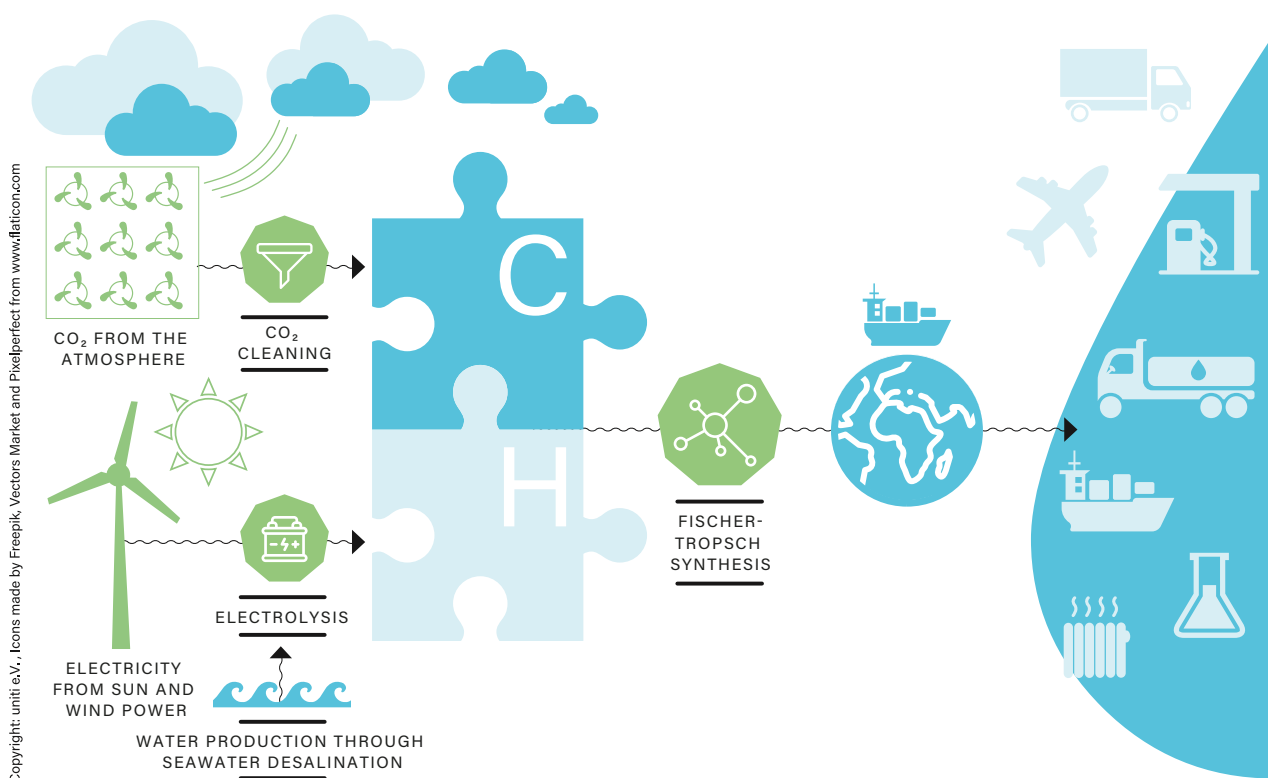
sectors. eFuels have significant advantages: They have a high energy density and are easy to store. This offers the opportunity to make inexpensive renewable energy from areas rich in sun and wind available worldwide.

## How are eFuels produced?

*Entirely from renewable sources!*

The basis for the production of eFuels are the so-called power-to-liquid pathways, which are used to produce electricity-based liquid fuels using renewable electrical energy. First, hydrogen is produced from desalinated seawater by electrolysis using renewable electricity. The hydrogen is then synthesised

with carbon dioxide using the Fischer-Tropsch process, developed back in 1925 in Germany, to produce a liquid climate-neutral fuel. This fuel can be used as an admixture in petrol, diesel or heating oil or as a pure climate-neutral fuel, which can replace all current conventional liquid energy carriers.



# What are the advantages of eFuels?

*They are climate-neutral, affordable and can be used everywhere!*



## Environmentally and climate-friendly

- eFuels can be **produced globally** in regions with a high potential for solar and wind power generation.
- By importing eFuels, only a **limited amount of wind turbines and solar panels have to be installed** in Europe. This improves acceptance for the energy transition in our countries.
- eFuels are **climate neutral**. Additional greenhouse gases are therefore not emitted.
- eFuels can be **easily stored**. One of the main unsolved questions of our energy transition, how renewable energy can be stored and thus made available at any time, can be elegantly solved with eFuels.
- eFuels emit **significantly less nitrogen oxide** and particulate matter than conventional fuels.
- eFuels **do not have** a disposal and recycling problem.



## Versatile and can be rapidly integrated into the existing infrastructure

- eFuels are **compatible** with conventional oil heating systems and combustion engines and can thus be employed in the existing infrastructure.
- As there is already a **broad distribution network available**, eFuels could be rapidly introduced to the market.
- eFuels **can be mixed with fossil fuels** without any problems (drop-in capability from 1 – 100 %).
- eFuels are **suitable for all modes of transport**: passenger cars, heavy-duty vehicles, airplanes and ships. In addition, they can be used as a substitute for crude oil in the chemical industry.
- There is **no technological alternative** to the use of eFuels for **transport by air or water**, for large parts of heavy goods traffic as well as in construction, agriculture and forestry.



## User-friendly and convenient

- With eFuels, there is **no need for an expensive change of technologies** in the transport and heating sector. For the consumer, this means **no switching costs, no need for reorientation** towards different technologies and an easy and familiar handling process of a safe energy source. This promotes a **high-level of acceptance** for eFuels.
- eFuels can be **distributed via existing infrastructure** and are therefore easily available to the consumer.
- eFuels have all the **advantages of conventional liquid fuels**: a short refuelling process as well as high energy density, which enables a long vehicle range.
- Studies by renowned research institutes show that eFuels **can be produced for around 1€/litre** in the medium term, hence guaranteeing that fuels remain affordable for consumers.



## Promote international energy cooperation and safeguard economic prosperity

- Most European countries cannot currently meet their energy demand solely with domestic climate-neutral energy sources, are unlikely to do so in the near future, and are therefore dependent on the import of renewable energy. eFuels can be **imported economically and without any technical difficulty**.
- eFuels can be **employed globally**. They can therefore support developing countries in establishing a climate neutral energy system.
- eFuels can **strengthen international energy cooperation**.
- **Europe** can remain an international **leader in manufacturing engines and industrial plants** and preserve its small and medium-sized supplier industry. As a result, several hundred thousands of jobs in Europe are protected.
- Engineering companies from Europe are world leaders in the development of Power-to-X technology, with which eFuels can be produced. This **strengthens Europe's export economy and can create additional jobs**.

# When will eFuels be available?

*From tomorrow – if the political framework allows it!*

Universities, research institutes and the industry are intensively working on climate-neutral fuels and are already successfully producing eFuels in small quantities. Extensive tests have confirmed their market readiness. At the moment, eFuels are being produced

in pilot plants. The first large-scale plants are anticipated in the medium term. A market ramp-up can take place in the next few years. A comprehensive supply of the transport and heating sector with eFuels is possible.

## What are our political demands?

### 1 Openness to technology in climate protection policy.

We believe that a regulatory approach open to all technologies, and hence the promotion of synthetic liquid fuels, is the most efficient path to reducing greenhouse gas emissions. In this way sustainability, innovation, competition and acceptance can all be reconciled.

### 2 Holistic economy for hydrogen-derived products in Europe.

Through the production and use of hydrogen-based products such as eFuels, Europe can be at the forefront of global technology and thus also secure its competitiveness as a location for industry. This requires a regulatory framework and appropriate market conditions. It is the task of the European Union to guarantee a holistic approach to setting the necessary production requirements and regulatory standards, including for eFuels.

### 3 Reduction in energy tax.

The positive contribution that eFuels make to climate protection must be taken into account in energy tax policy. If energy tax is levied on an environmentally relevant tax base, this will promote the use of eFuels instead of conventional fuels. This will make it possible to achieve a market ramp-up for synthetic fuels.

### 4 Recognition of eFuels in the EU fleet targets.

Crediting the CO<sub>2</sub>-reduction contribution of eFuels within the framework of EU fleet targets for passenger cars, light and heavy-duty vehicles is a decisive lever for achieving the climate targets in road transport. It is therefore essential that the greenhouse gas savings achieved by eFuels are taken into account when calculating the EU CO<sub>2</sub> fleet targets in order to create another option for achieving the transport sector's climate targets.

### 5 Strengthening international cooperation to set up global production.

With the help of eFuels, globally generated electricity from renewable energies can be used worldwide for the first time. That is because eFuels are easy to store and transport and thus create the possibility to produce and import renewable energies globally in the form of liquid energy carriers. This makes a decisive contribution to the global energy transition by building a climate-friendly energy system that helps develop the resources of economically weaker regions.

### 6 Promoting the industrial production of eFuels.

eFuel production on an industrial scale should be achieved as quickly as possible by promoting pilot projects. A market ramp-up can also be supported in the short term by tendering procedures, and commitments to volume orders, that would provide investors with added security.



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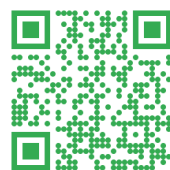
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[www.efuel-alliance.eu/en/studies](http://www.efuel-alliance.eu/en/studies)

Watch videos



(English) eFuels –  
the solution for  
tomorrow's climate-  
neutral transport



(German) eFuels –  
the climate friendly  
alternative for  
the heating sector

The eFuel Alliance is an interest group that advocates for a positive policy framework for the use and production of eFuels from renewable energies. We aim to win broader recognition of the significant contribution eFuels can make in the drive for sustainability and climate protection. Our goal is to facilitate the industrial production and widespread use of carbon neutral synthetic liquid fuels from renewable energy sources.