Key recommendations for the 2nd international eFuel Conference

The signatories of this letter, representing 175 companies, associations and consumer organisations of the eFuel Alliance, welcome the 2nd eFuels Dialogue organized by the German transport ministry taking place at 4th of June in Berlin. Global collaboration to fight climate change and to phase-out unabated fossil fuels is of core importance. The signatories of this letter are fully committed to achieving the global climate goals in line with the Paris agreement.

Achieving the climate targets goes hand in hand with the development of eFuels value chains as well as sustainable biofuels and the associated gradual phase-out of fossil fuels. All emission-reducing technologies play an important role, such as eFuels, low carbon hydrogen, advanced biofuels, and electrification. Our basic stance is to enable competition between technologies in order to achieve maximum emission reductions and at the same time achieve an affordable and fast energy transition in all sectors. We stand ready to scale up the eFuel technology if the undermentioned industry recommendations are followed:

A. **We need ambitious action across sectors and the promotion of all relevant climate-friendly solutions to accelerate the transition towards carbon neutrality.**

B. **Demand-oriented policies via fair but ambitious quotas are required as long as carbon pricing is insufficient to fill the price gap between fossil fuels and eFuels.**

C. **Funding schemes, CO_2 pricing and tax reduction further help to minimize the price gap and to overcome first-mover disadvantages.**

D. **Transport modes that face tough international competition like aviation and maritime need additional support.**

E. **Sectors should not be played off against each other. An approach that is as open as possible creates the best incentive to be able to ramp up the industrialised production of eFuels as quickly as possible pressing environmental goals.**

F. **Energy partnerships must be formed to develop top global locations. A trade strategy for renewable energy sources should be formulated.**

G. **Certification of eFuels should be globally harmonised and complete to avoid market fraction and loopholes. Delegated acts for electricity supply and carbon sources need to be more practical in the beginning. The EU should consider grandfathering to reassure investors that their green investments will remain valid once in operation.**

See additional explanation in the explanatory addendum e.g., on trade benefits, industrial and job potential, availabilities and productions capacities.

Please see a list of signatories on the next pages.

Once again, we would like to thank Dr. Volker Wissing, the German transport minister, for his constant support and the opportunity for this valuable exchange.


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PORSCHE
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ROTH ENERGIE
ROWE
RÖDL energie
RWG Groß Lessen-Diepholz eG Raiffeisen-Warengenossenschaft

Explanatory Addendum:

1. eFuels are needed cross-sectoral

Renewable energy is potentially not a scarce commodity worldwide. The independent German research body Fraunhofer Institute for Energy Economics and Energy System Technology has investigated the eFuel potential outside Europe: The potential clearly exceeds demand across different sectors.

eFuels solve two problems of the energy transition: storage and the distribution of renewable energy. Especially for energy importers such as the EU or Japan, for example, this is a key to the energy transition. Cross-sector use of eFuels leads to quickly available, affordable and large quantities. A larger purchase market enables investments worth billions and the sale of all byproducts generated during production. This is also supported by latest scientific studies, be it from the Finnish LUT University that shows the necessity of scaling up these liquid and gaseous renewable energy sources as the demand for substituting fossil fuels with eFuels and eChemicals is rising dramatically. Up to 40,000 TWh of hydrogen and derivatives like eMethanol, eAmmonia, eMethane and Fischer-Tropsch products are required and can avoid 13 Gt of CO_2 emissions in 2050 [2].

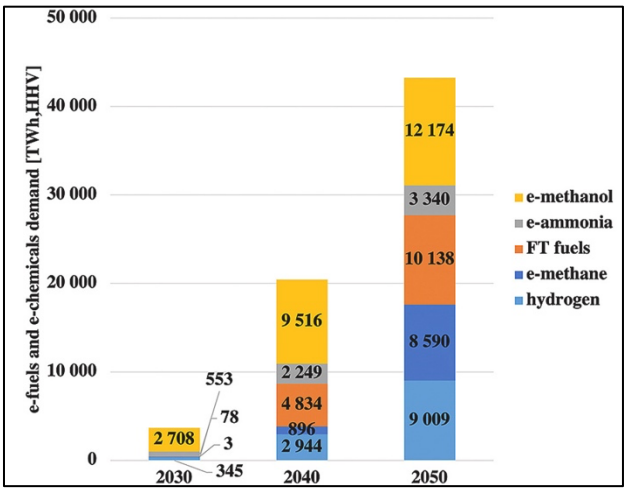

Figure 1: Development of eFuels and eChemicals according to [2]

Restricting the use of eFuels to so-called hard-to-abate sectors, where direct electrification is currently not feasible (e.g. aviation and maritime transport) will delay and decrease investments and increase dependency. Both the market and CO_2 abatement costs are not sufficient in these sectors to ensure a sufficient market ramp-up and thus the availability of renewable fuels - at least not without substantial subsidies. The opposite is true: considering renewable fuels in the road transport would foster further investments and volume production of such fuels, thus creating economies of scale, which would be eventually beneficial for hard-to-decarbonise transport sectors such as aviation and maritime. The production of eFuels often results in a variety of byproducts that can be used in a multitude of sectors. In addition, a cross-sectoral ramp-up makes sense in terms of climate policy. A mix of climate neutral energy sources and vehicle powertrains can accelerate the transition to carbon neutrality for the EU27+UK road transport sector better than all-electric: A study by 50 industry experts shows that all carbon neutral powertrain pathways face technical bottlenecks of various kinds that limit the maximum ramp-up for each individual GHG-neutral technology. A technology mix can therefore significantly accelerate the ramp-up of GHG-neutral vehicle powertrains [3].

Aviation and maritime are in a special situation. These sectors face global competition and fuel prices matter a lot. For example, EU hubs for intercontinental flights are in competition to hubs outside the EU like Istanbul or Arabic airports. If you step over in hubs outside of the EU you do not have to comply with regulations like ReFuelEU aviation or EU-ETS. Therefore, European hubs and airlines are facing clear economic disadvantages. For that reason, we recommend bringing additional support to these sectors. An already existing instrument is the ETS-allowances. Here, airline revenues from the EU emission trading scheme (ETS) are used to compensate price difference between fossil and renewable fuels. We recommend expanding that instrument beyond 2030 to increase planning security and to realise more investments in renewable fuels. In addition, we recommend developing a similar approach for the European maritime sector, which is also included in the ETS now. Further, funding schemes like EU Hydrogen Bank and H2Global should prioritise hard-to-abate sectors like aviation and maritime. However, as mentioned above eFuels will be needed in many sectors. A cross-sectoral approach is required to support eFuels in aviation and maritime sector.

2. WIN-WIN Situation

A broad introduction of eFuels and Biofuels would also open up enormous investment and job potential along the value chain for synthetic fuels. In Germany alone, the production and export of PtX technologies and plants could generate EUR 36.4 billion in additional value added per year (in Europe: EUR 80 billion) and create up to 470,800 new jobs (in Europe: 1.2 million new jobs) [4]. This goes hand in hand with benefits for the partner countries: local jobs and added value are

created. eFuels production could create up to 278,700 new jobs, 18,900 directly and 259,800 indirectly with upstream suppliers. This applies to almost all countries in Africa and the Middle East, but also to large parts of Central and South America and many countries in Asia and Australia [5]. Globally, according to a publication in the journal 'Energy' hydrogen and its derivatives like eMethane and Fischer-Tropsch fuels will create 3.6 million jobs directly. Apart from jobs directly related to e-fuel an e-chemical synthesis, millions of jobs are expected to be added in relation to electricity and storage needed to produce these fuels. Almost 37 million jobs are expected to be added globally in the power sector in 2050. Storage is expected to provide another 9.8 million jobs globally. Many of the newly created jobs can be expected in Africa, Northeast Asia and South America [6].

The Finish LUT University has used a global renewable energy model to calculate which countries are suitable for the production of eFuels based on regional conditions and can export eFuels in addition to their own supply [2]. In total, more than 30 countries are available to export synthetic fuels – significantly more countries than those from which we import fossil fuels today. In addition to the economic effects on both sides, green energy is also produced, which means that both importer and exporter are driving forward the energy transition. Through global energy partnerships, the energy transition can become a global success story. According to Eurostat, Europe imports more than 60 per cent of its primary energy needs. Even if we manage to significantly expand our renewable energy installations, large parts of the EU will still need to rely on energy imports to achieve the climate-neutral transition of our economy, as it is still heavily reliant on fossil fuels. And this is where eFuels come into play: eFuels can be produced in sparsely populated regions around the world, where sun and wind are constantly available, and then shipped to Europe to provide stored renewable energy in the form of climate-neutral liquid or gaseous synthetic fuels. **The need for a global approach, with partnerships, becomes especially visible when comparing suitable production locations and import demands from countries with less possibilities**. The need for an import strategy is also shown by the LUT University's projection of the necessary import volume that shows the need for the EU to establish partnerships. The same study shows that Global trade will reduce the levelised cost of eFuels by up to 30 % in some regions like Europe compared to a self-supply scenario.

3. Setting out a pathway to Net-Zero

A safe investment environment and sufficient planning certainty are required for the rapid scale-up of renewable fuels and underlying technologies such as Carbon Capture. This is crucial to reduce the use of unabated fossil-based energy carriers and transition the energy system. The EU made important first steps in the right direction by including eFuels in most relevant climate policies. Be it as sub-quota under the Renewable Energy Directive (RED) or in sector specific legislation for maritime (FuelEU Maritime) and aviation sector (ReFuelEU Aviation). We are concerned that the measures adopted are not ambitious enough to realize the full potential of sustainable renewable fuels. **As eFuel Alliance we advocate for an ambitious national implementation of RED** (see our position paper).

eFuels as well as biofuels could provide various sectors with a climate-neutral alternative: eFuels are suitable for all modes of transport that are powered by an internal combustion engine. In aviation and shipping, eFuels are largely without alternative. In road transport, they can supplement the expansion of electromobility with an additional climate-friendly option. This is particularly important if the demand for electric vehicles encounters challenges (e.g. due to a lack of charging stations, rising electricity prices, discontinuation of existing subsidies, etc.). eFuels will also be used in future as a raw material for the chemical industry or for steel production, and they are also a climate-neutral alternative to conventional heating oil and gas. With a gradual increase in the quantities of eFuels and falling production costs due to economies of scale, eFuels will be affordable for consumers at every stage as well as for sectors where defossilisation is difficult, such as aviation and maritime transport (hard-to abate sectors). According to the German institute of

economics, an admixture of 5% eFuels would increase the overall fuel price at petrol filling station by only 7 ct/l [7]. The price projection of €5 or more per liter refers to demonstration plants. This representation is incorrect for industrial production. According to Fraunhofer ISE the production costs of eMethanol or eDiesel can be around 0.2 €/kWh or below 2 € per liter diesel equivalent in 2030. Here the transportation to Europe and CO_2 from direct air capturing is included [8]. A recent study by the International Energy Agency (IEA) forecasts production costs of less than/below €1.7 per liter in 2030 [9]. This shows the possible cost-competitiveness in the future, if needed steps are undertaken.

The current low number of final investment decisions (FIDs) for announced hydrogen projects of just 1.8% is therefore a cause for concern as well as a call for action [10]. Political support can reduce the first mover disadvantage and enable project realisation. Quotas can stimulate a market and be supported by funding programmes such as the US-IRA or the EU Hydrogen Bank that help, especially at the beginning, to reduce the cost differences between green and fossil fuels. Further, developing a planning horizon beyond 2030 and a roadmap to 2050 is crucial. Since plants operate for decades a reliable framework that prevents stranded assets as well as allows cross-sectoral market application is needed.

eFuels present a unique opportunity to decarbonise the existing fleet stock with about 1.4 billion cars and trucks; 90 thousand ships and 27 thousand aircrafts, providing an immediate impact on CO_2 emissions [11]. Unlike other technologies, eFuels utilise existing fuel logistics, avoiding competition with electrification for charging infrastructure. This advantage is particularly significant in regions with less developed charging networks.

4. Align pragmatic certification criteria

With view to enabling eFuels to become a tradable commodity, international alignment as regards certification of renewable fuels is of great importance which also contributes to the Declaration of Intent published at COP28. The importance of fostering global trade has been mentioned above. Further, criteria for production of hydrogen should at this early stage of the market have a pragmatic approach that leads to less cost and faster scaling of this industry. The restrictive approach that the EU chose for electricity supply and carbon sourcing is making the green hydrogen more expensive with only marginal additional GHG savings. On the one hand, green hydrogen is urgently required in many sectors. But on the other hand, it is the only product, which needs to prove additionality, temporal and geographical correlation in the electricity supply. Further problems occur by outstanding definitions on the use of industrial carbon for imported eFuels that require an “effective carbon pricing”. So far, the European Commission has not approved any certification body for hydrogen and eFuels. This needs to be immediately done. An equivalent does not exist outside the EU that is like the Emission Trading System – this poses a significant barrier to the trade of eFuels from third countries. **We agree that we need detailed and clear regulation in future. But in the beginning, it is hindering and delaying the market ramp-up significantly.** This is underlined by a joint letter of 18 European industry associations. It is also important that those criteria can be checked globally by independent witness-audits. Countries that refuse those audits should not receive certification.

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