

# Power to Methanol in German and European context

***e-Methanol* as a Carbon Product**

Methanol Policy Forum - pre-conference workshop

13th October 2015, Brussels

# Power production in Germany

- Power export Germany in 2013 was 34 TWh
- Emission load for Germany 30 Mio to CO<sub>2</sub>/a
- Additional saving demand 22 Mio to up to 2020
- Missing grid infrastructure reduce the renewable power production capacity
- Missing the climate targets 2020
- 656 TWh consumption in the transport sector

Solution must be the Chemical Energy storage

# Renewable Energy Directive (2009/30) & Fuel Quality Directive (2009/28)

The amended FQD and RED introduce RED-Annex IX advanced fuels and feedstocks:

- (a) renewable liquid and gaseous fuels of non-biological origin      **Power to X**
- (b) carbon capture and utilization for transport purposes      **Carbon to fuel**

**Power to X and Carbon to fuel is there**

The emission intensity of needed power is emission intensity of the national grid -  
Then PtX is not a sustainable product and is not a recognized product

Or

Power is supplied by a renewable energy production with no grid connection -  
then PtX is not in sufficient production

In contradiction to Annex IX is Article 15 RED, where the energy supplier is allowed to supply renewable power with guarantees of origin.

# Regulation to reduce CO<sub>2</sub> emissions from new passenger cars (333/2014)

In 2021 manufacturer of cars must comply with the threshold of 95 gCO<sub>2</sub>/km for their sold car fleet. Basis for calculation is the actual GHG-emission of the used fuel. Fuels with GHG-savings from life-cycle assessment don't have a legal impact on the fleet mix. Three major exceptions are:

- Emission innovative technology packages, which shall be used to reduce the specific emission target of a manufacturer up to 7 gCO<sub>2</sub>/km.
- Alternative fuel vehicle (a vehicle designed to be capable of running on at least one type of fuel that is either gaseous at atmospheric temperature and pressure, or substantially non-mineral oil derived) ← **Not implemented**
- The definition for electrical vehicle is zero CO<sub>2</sub> Emissions

**Power to liquids is not recognized**

# Directive on internal market in electricity (2009/72)

The liberalization of the electricity market aims a Europe-wide competition in the electricity production or their resale and import. Therefore the separation between Producer, Transmitter and Supplier is implemented.

With the foundation of European Network of Transmission System Operators for Electricity (Entso-e) and the International Grid control Cooperation (IGCC) the market is liberalized, but not implemented in the infrastructure.

**With the missing grid infrastructure  
large scale energy storage is needed**

According to the Emission trade system the export from Power between the Member states is CO<sub>2</sub>-free power supply for the national balance.

With the production of *e-fuel* power can be stored and power exports, which are disadvantageous in the national CO<sub>2</sub> balance, can be prevented and fossil fuel imports can be replaced.

# Trend beyond 2020

**EU Energy Roadmap 2050 (dated 2011)  
defines the post 2020 targets in a decarbonization strategy of the European Union**

Carbon Capture and Storage (CCS) is considered as system solution from 2030 on, but acceptance of the population can not be assumed anymore.

Instead of that Carbon Dioxide Utilisation (CDU) CCR recycling, CCUtilization becomes the answer for a Low Carbon society.

„Of special importance is the shift towards alternative fuels, including electric vehicles.“

„In transport, a mix of several alternative fuels will be needed to replace oil.“

**Commission July 2015**

**Electricity and other fuel use in transport**

„The share of renewable electricity is expected to increase significantly until 2020 and beyond. Given the move towards a low carbon electricity mix, both electrification of transport and the use of renewable hydrogen could contribute to the decarbonisation options of the transport sector.“

Uncertainty in the currently developing legal framework doesn't provide needed planning reliability. For this reason we suggest to initiate an interest group.

**The foundation of an e-fuel Association is needed**

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Thank you for your attention!

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**SCOT** (Smart CO<sub>2</sub> transformation) prepares recommendations for the EU on CO<sub>2</sub> utilization.  
[www.scotproject.org/](http://www.scotproject.org/)



The **Network Renewable Methanol** builds up the entire value chain.  
[www.regeneratives-methanol.de](http://www.regeneratives-methanol.de)



The **MI** (Methanol Institute) promotes the global sale of Methanol.  
[www.methanol.org](http://www.methanol.org)