



## **October 17th, 2019 – Excursion to two selected, regional biomethane projects**

These projects will introduce you to innovative and established biogas upgrading and biomethane-mobility concepts. This excursion is guided by expert IBBK-staff as well as the plant operator or technology provider.

**Language: GERMAN/ENGLISCH**

### **First stop**

#### **Biogas plant with biogas upgrading and a decentralized biomethane filling station**

“Bioenergiehof Weitenau”, situated South-West of Stuttgart, is a truly unique biogas plant. Like all biogas plants, the initial construction was designed to produce gas and run an internal combustion engine which burns the gas to produce heat and electricity.

With the expiration of the feed-in tariff in 2024, the operators Juliane and Winfried Vees will lose their bonus on each sold kWh electricity. As many other farmers and plant operators, they have to look for further possibilities to make use of their product. One possible way is direct marketing, which the operators of Bioenergiehof Weitenau realized in the shape of a GREEN-CNG gas station installed in September 2015.

To upgrade the biogas into CNG-quality gas, purification processes are necessary. The most important cleaning process is the CO<sub>2</sub>-stripping through the so called “membrane contact method”. It is a both sophisticated and simple technological process developed by a German engineering company called “BUSE”. This method doesn't need any chemicals and is realized with comparably little energy costs.

Only about 7 % of the produced biogas is upgraded to CNG-quality – an amount that will surely increase in the future. Nowadays, about 15 m<sup>3</sup> CNG is produced per hour, making a total of 120 kg per day. This is enough to fuel roughly 6 cars per day.

The investment costs for the upgrading unit including the gas station were roughly 335,000 €, of which 25 % were paid by the federal state Baden-Wuerttemberg.

As all other CNG/Biogas gas stations, the operators have to advertise the advantages of a local, conflict- and fossil-free fuel. CNG has a higher energy density compared to Diesel (about 1,3 times) and burns much cleaner. CNG-powered cars are only slightly more expensive compared to their fossil-fueled counter parts. But with reduced taxes and lower fuel prices, the amortisation time of a CNG-car is reached quickly.

## **Second stop**

### **Biogas plant with upgrading and grid injection – Bioenergie Oberriexingen**

This biogas plant is a cooperation plant between the city works Bietigheim-Bissingen, a group of eight farmers and the operator Mr. Armin Schmid.

The unique arrangement regarding substrates and products make this plant a one of a kind. The eight farmers deliver the substrate to the plant and apply the digestate that#s coming out of the plant on their own fields.

The produced, raw biomethane of 950 m<sup>3</sup>/h is transferred to the processing unit operated by the city works Bietigheim-Bissingen where 1/3 is burnt directly in the local CHP-unit. This produces electricity and heat to provide the biogas upgrading unit with thermal energy.

The biogas upgrading unit, working with an amin-washer, purifies the raw biogas into biomethane which is ready to be fed into the natural gas grid. The gas grid is operated by the South German energy supplier EnBW.

Inside the city of Bietigheim-Bissingen there are multiple CHP-units connected to the same gas grid, extracting the biomethane on demand, producing heat and electricity where it is needed.

Source: <http://www.oberriexingen.de/stadt-tourismus/aktuelles/aktuelles-aus-oberriexingen/news/25/06/2018/indische-delegation-zu-besuch-bei-der-biogasanlage-in-oberriexingen/>

Brochure: Steckbrief\_Oberriexingen\_10-12\_72dpi.pdf

As of August 2019 – program subject to change