



This project receives funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727330 – HiEff-BioPower.



## Announcement of the Webinar

# Novel and medium-scale CHP system based on fuel flexible biomass gasification connected to a solid oxide fuel cell (SOFC)

**17 November 2021, 14:00 – 16:30 CET (2:00 – 4:30 PM)**

Within the EU Horizon 2020 project "HiEff-BioPower" (GA No. 727330), a new innovative, fuel flexible medium-scale biomass combined heat and power (CHP) technology has been developed. The concept is based on a fixed-bed updraft gasifier, a gas cleaning unit for tar, particulate matter, H<sub>2</sub>S and HCl removal and a solid oxide fuel cell (SOFC) system. The technology is capable of using a wide fuel spectrum (e.g. wood pellets/chips of various sizes and moisture contents, short-rotation coppice, selected agricultural fuels), while still achieving high electric and overall efficiencies, as well as incomparably low gaseous and nearly zero particulate matter emissions.

A testing plant consisting of a pilot-scale gasifier (500 kW fuel power related to the NCV of the fuel input) and a side stream gas cleaning unit supplying a 6 kW<sub>el</sub> SOFC with cleaned product gas has been developed and constructed. At this plant testing campaigns with wood chips, poplar from SRC and pellets from torrefied wood have been performed.

The technology development which was based on process simulations, computer aided design, pilot plant construction, performance and evaluation of test runs, risk and safety analysis has been complemented by a thorough assessment of its techno-economic performance, environmental impacts, as well as market potential.

This webinar will inform about the technical achievements of this exciting new technology, areas of application, relevant impacts, as well as on further steps needed to make this technology ready for the market.

### **The workshop is organised by**

Wuppertal Institut für Klima, Umwelt, Energie gGmbH and BIOS BIOENERGIESYSTEME GmbH in cooperation with the HiEff-BioPower partners.

### **Contact person:**

Thomas Götz

Döppersberg 19 | 42103 Wuppertal | Germany

[thomas.goetz@wupperinst.org](mailto:thomas.goetz@wupperinst.org)

+49 202 2492 213

## Agenda

**Moderation: Thomas Götz, Wuppertal Institute**

| Time  | Topic   | Speaker   |
|-------|---|---|
| 14:00 | Welcome address, organisational aspects   | Thomas Götz, Wuppertal Institute                    |
| 14:05 | Biomass updraft gasification combined with SOFC – a fuel-flexible and efficient combination for small-scale CHP | Thomas Brunner,<br>BIOS BIOENERGIESYSTEME GmbH      |
| 14:20 | The gasification system   | Simon Hirscher,<br>Mawera Holzfeuerungsanlagen GmbH |
| 14:35 | The gas cleaning unit (GCU)   | Jürgen Sitzmann,<br>CALIDA CLEANTECH GMBH           |
| 14:50 | SOFC stack development  | Stefan Megel,<br>Fraunhofer IKTS                    |
| 15:05 | SOFC – overall system design  | Ortwin Dumböck,<br>AVL List GmbH                    |
| 15:20 | Presentation of results - Gasifier performance and GCU evaluation   | Klaus Supancic,<br>BIOS BIOENERGIESYSTEME GmbH      |
| 15:35 | Presentation of results - SOFC performance  | Ortwin Dumböck,<br>AVL List GmbH                    |
| 15:50 | Roadmap for deployment of fuel-flexible biomass CHP systems – results of the market study                       | Blanca Corona Belostas,<br>Utrecht University       |
| 16:05 | Assessment of the environmental and overall impacts of the new technology                                       | Thomas Götz,<br>Wuppertal Institute                 |
| 16:20 | Q/A session   | Thomas Götz,<br>Wuppertal Institute                 |
| 16:30 | Closing remarks   | Thomas Götz,<br>Wuppertal Institute                 |

Please register for the HiEff-BioPower final project workshop at:

**<https://attendee.gotowebinar.com/register/2545925090119804684>**

After registering, you will receive a confirmation email containing information about joining the webinar.