

# Title:

# CO<sub>2</sub>-negative H<sub>2</sub> from Biogas

## Abstract

The presentation visually explains the transformation of **hydrogen production through electrified Steam Methane Reforming (eSMR)**.

It begins with an **overview of conventional SMR**, illustrating how natural gas is typically converted into hydrogen using fossil-fuel-based heat.

The next section highlights the **benefits of switching from natural gas to biogas**, emphasizing its potential for carbon-neutral or even carbon-negative hydrogen production.

We then focus on the **advantages of electrifying the reformer**, replacing fossil-fuel combustion with renewable electricity. This innovation reduces CO<sub>2</sub> emissions, increases efficiency, and enables greater integration of renewables in hydrogen production.

Finally, the presentation showcases how this approach empowers biogas plant operators to **flexibly switch between hydrogen production during periods of excess renewable electricity and conventional biogas-based power generation** when wind and solar energy are scarce. This flexibility enhances grid stability, optimizes resource utilization, and creates new revenue streams for biogas operators.