

# POWER-TO-SNG (PtSNG)

1.2 MW<sub>el</sub> turn-key system

**ETOGAS**  
smart energy conversion

**Turn-key system** for the conversion of electricity to synthetic natural gas (SNG):

- base unit with 1,2 MW<sub>el</sub> electrical input power
- modular & scalable design, external installation
- capable of full dynamic, intermittent operation
- CAPEX optimized
- high conversion efficiency: Power-to-SNG: 54% (LHV)

## KEY BUILDING BLOCKS BASED ON ETOGAS' PROPRIETARY TECHNOLOGY:

### HIGH-PRESSURE ALKALINE ELECTROLYSIS

- > large cell stack capacity
- > 6.000 cm<sup>2</sup> cell area for MW applications
- > coverage of all dynamic operation requirements

### METHANATION TECHNOLOGY

- > patented fixed-bed plate reactor
- > high gas quality: up to 99% CH<sub>4</sub>
- > broad variety of CO<sub>2</sub> sources applicable
- > utilize process heat in form of water / steam

## VALUE PROPOSITIONS

- > **PtSNG plants produce an advanced renewable fuel** with exceptionally low carbon footprint and feature cost-effective solutions for climate-neutral mobility
- > PtSNG plants provide **assured balancing power** and **allow energy traders to dynamically decide which product to supply** – electricity or gas
- > **PtSNG plants utilize waste CO<sub>2</sub>** as well as a variety of lean gas types – and are ready to convert such gases to grid-compliant SNG or pure methane

**INPUT**

Electrical Load (nominal)	1.2 MW <sub>el</sub> (TAB 2008 compliant), modular
Feed Gas (CO <sub>2</sub> )	62.5 Nm <sup>3</sup> /h CO <sub>2</sub> or raw biogas / sewage gas with equivalent CO <sub>2</sub> content
Tap Water	350 l/h

**OUTPUT**

Synthetic Natural Gas (SNG)	62.5 Nm <sup>3</sup> /h (in addition to Methane contained in the Feed Gas)
Steam	approx. 110 kW <sub>th</sub> at 250 – 300 °C (70 bar)
Heat (Hot Water)	approx. 200 kW <sub>th</sub> at 60 – 80 °C

**SCOPE OF SUPPLY / FEATURES**

Electrical Load Range	10% – 110%
Dynamics	secondary control power (0 – 100% per 5 min) primary control power (15% per sec)
Grid Connection	20 kV AC, 1.4 MVA transformer included
SNG Properties	compliant with DVGW G260, 262 (L-gas, H-gas)
Total Footprint Area	30 m x 30 m
Temperature Range (Outdoor)	-20 °C up to +40 °C
Control System	Siemens S7 PLC (PCS 7 optional), Profinet/-bus
Lifetime	20 years
Design Standard	CE certificate

**ELECTROLYSIS**

Type	pressurized alkaline electrolysis
Pressure (H <sub>2</sub> Output)	up to 15 bar
Set-up, Cell Size	4 stacks, 6.000 cm <sup>2</sup> active electrode area
Hydrogen Purity	H <sub>2</sub> > 99.9% / O <sub>2</sub> < 0.1%

**METHANATION**

Reactor Type	fixed-bed plate reactor
Operating Pressure (SNG Output)	7 – 8 bar
Cooling System	water/steam at approx. 70 bar

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