

# POWER-TO-HYDROGEN (PtH2)

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

**ETOGAS**  
smart energy conversion

**Turn-key system** for the conversion of electricity to hydrogen (H<sub>2</sub>):

- base unit with 1,2 MW<sub>el</sub> electrical input power
- modular & scalable design, ready for outdoor installation
- capable of full dynamic, intermittent operation
- CAPEX optimized
- high conversion efficiency:  
Power(AC) to hydrogen: 62% (LHV)

## HIGH-PRESSURE ALKALINE ELECTROLYSIS BASED ON ETOGAS' PROPRIETARY TECHNOLOGY

- > large cell stack capacity
- > 6.000 cm<sup>2</sup> cell area for lowest system capital cost and scalability to multi-MW utility scale applications
- > coverage of all dynamic operation requirements

## VALUE PROPOSITIONS

- > **PtH2 plants produce an advanced renewable fuel** with exceptionally low carbon footprint and feature cost-effective solutions for climate-neutral mobility
- > PtH2 plants provide **assured balancing power** and **allow energy traders to dynamically decide which product to supply** – electricity or gas
- > PtH2 plants allow for **on-site generation of hydrogen**

**INPUT**

Electrical Load (nominal)	1.2 MW <sub>el</sub> (TAB 2008 compliant), modular
Tap Water	350 l/h

**OUTPUT**

Hydrogen	250 Nm <sup>3</sup> /h
Oxygen	125 Nm <sup>3</sup> /h

**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
Efficiency	4.8 kWh <sub>el</sub> /Nm <sup>3</sup> H <sub>2</sub> (AC)
Total Footprint Area	15 m x 30 m
Temperature Range (Outdoor)	-20 °C up to +40 °C
Housing	2 x 40' container, 1 x 20' container (cooling & power management)
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

**GAS PURITY**

Hydrogen	H <sub>2</sub> > 99.9%, O <sub>2</sub> < 0.1%, higher purity on request
Oxygen	O <sub>2</sub> > 99.1%, H <sub>2</sub> O ~ 0.6%, H <sub>2</sub> < 0.3%

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